Better Homes and Gardens®

WOOD®

THE MAGAZINE FOR HOME WOODWORKERS

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AUGUST 1988•ISSUE NO. 24
Display until August 16

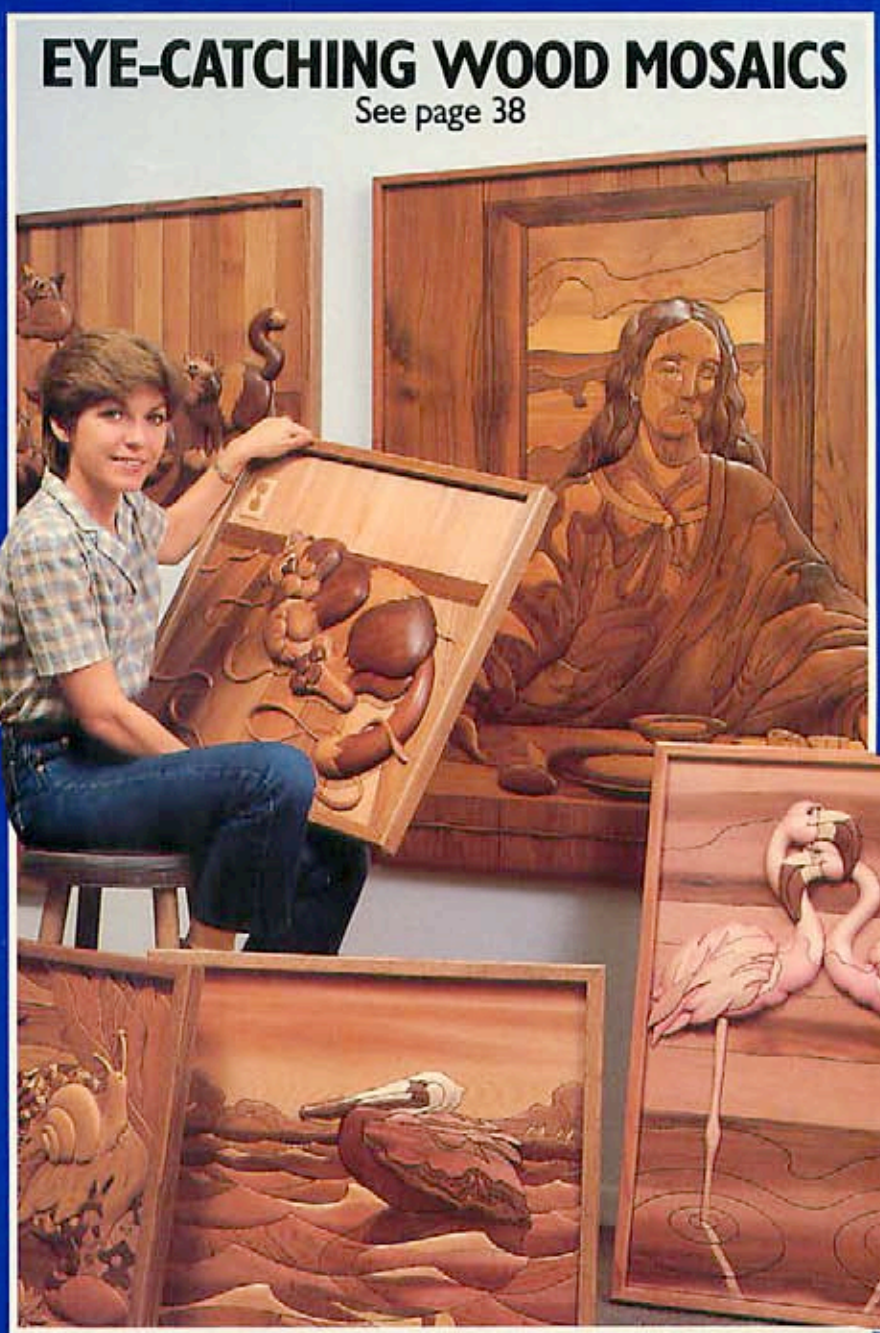
DRILL PRESSES
What to know before you purchase one

17 ways to put this tool to use in your shop

IMPROVE YOUR PROJECT PHOTOGRAPHS
Our tips help you get professional results

SHOP SAFETY
Your eyewear options

SUPER PROJECTS
Outdoor planters
3 cutting boards
Adjustable sawhorse
Mosaic wall hanging
Hillbilly carving
Low-boy truck
Rugged dump truck



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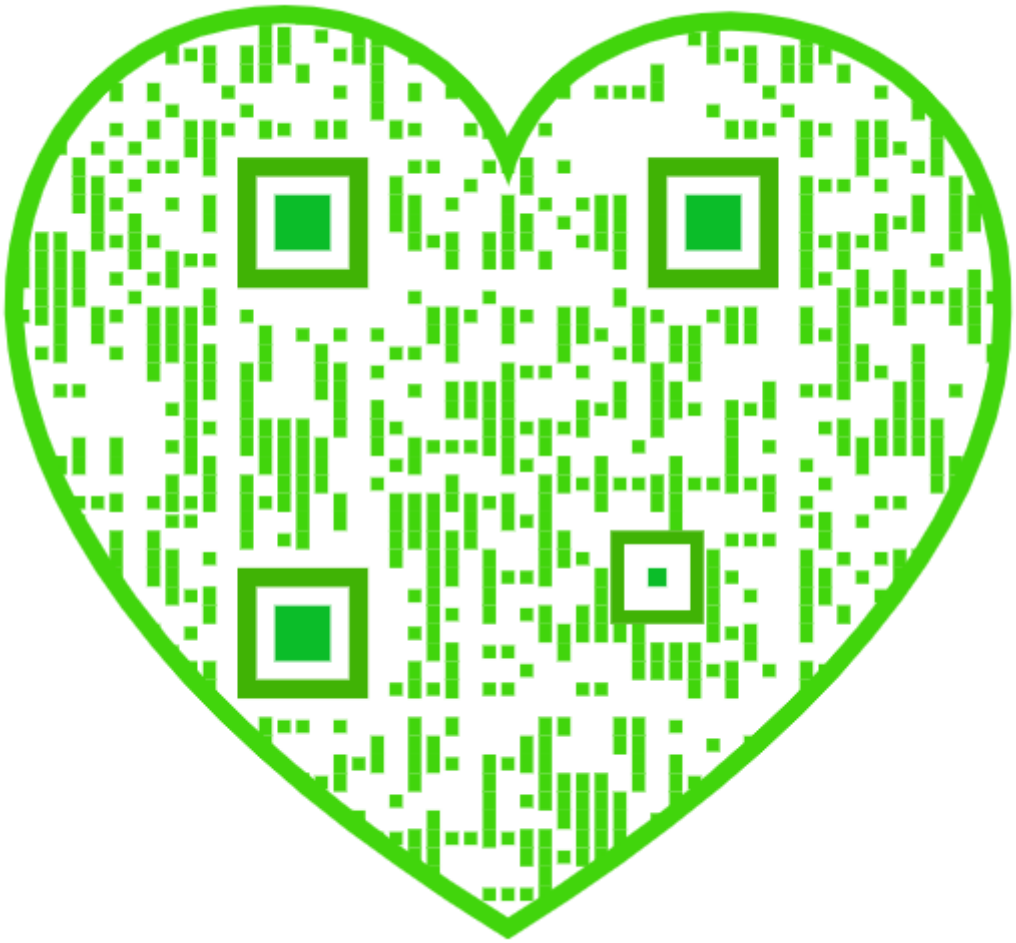

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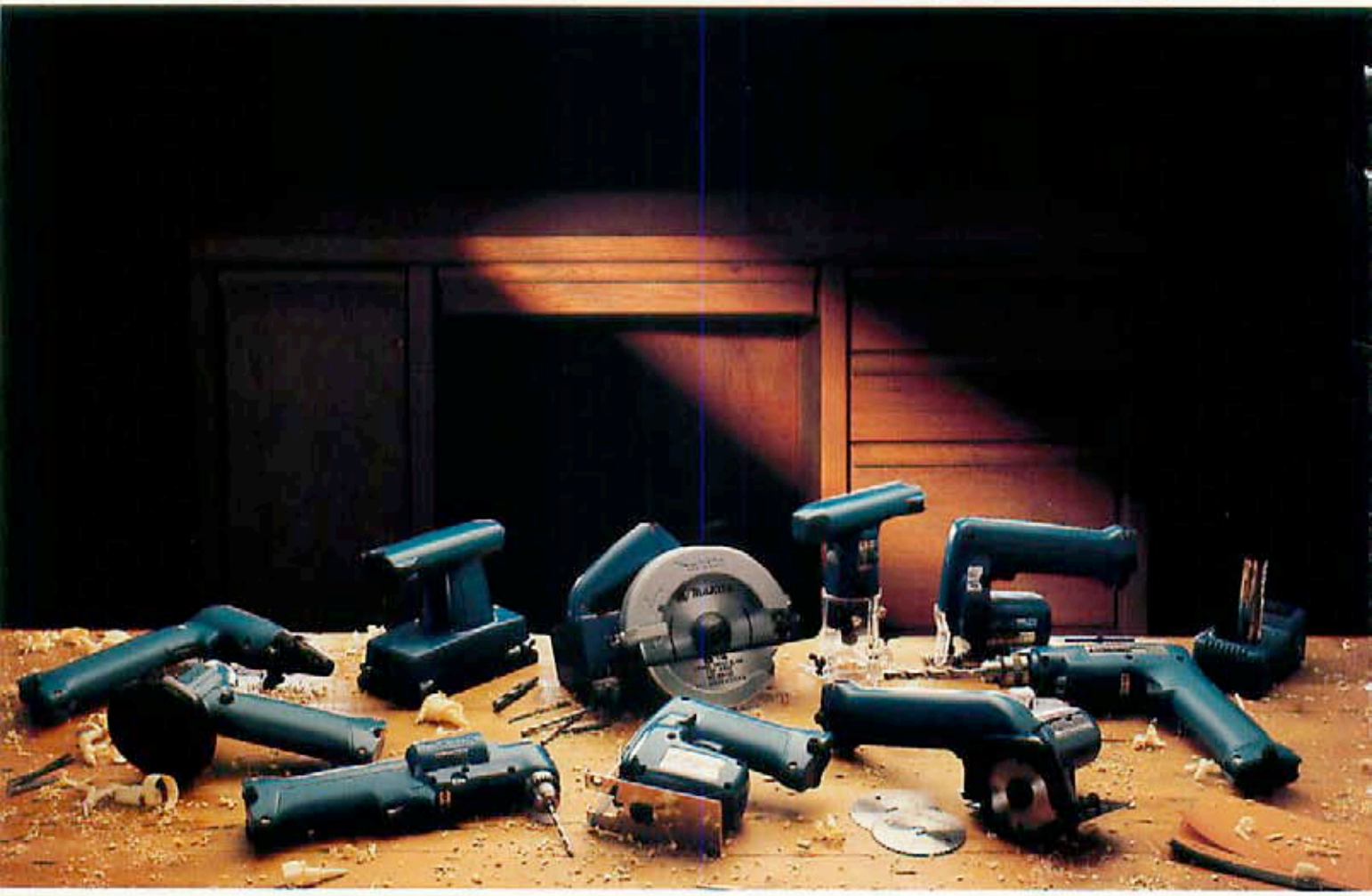

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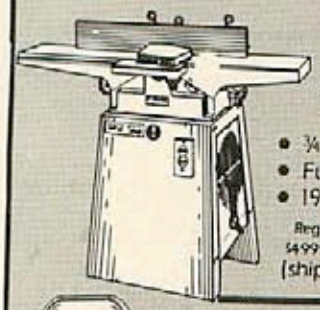

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- Fully adjustable
- 190 lbs.

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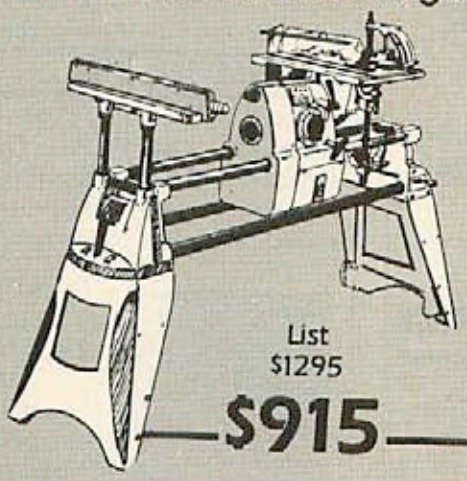

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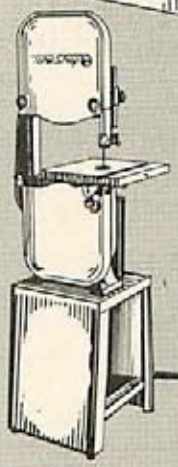

TS 14-56 14" Bandsaw
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- Cast iron construction
- 156 lbs.
- ¾-hp

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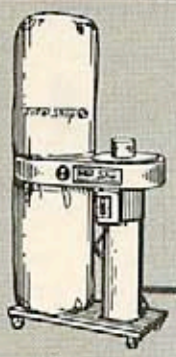

Dust Collector
- 1 hp, 110v
- 4" inlet
- Commercial quality
- Compact size

Reg. $348.00 **$209.00**
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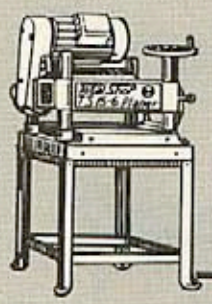

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- 15" x 6" Board Capacity

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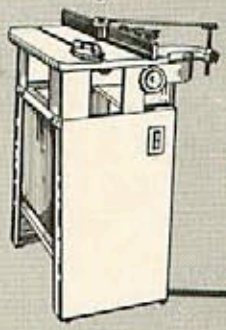

Wood Shaper
- ½" Spindle
- 1 hp
- Cast iron construction
- Precision fence
- 160 lbs.
- Ball bearings

Reg. $499.00 **$239.00**
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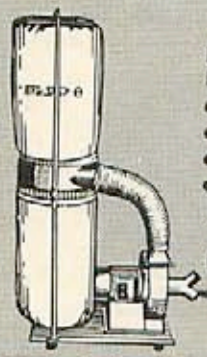

Industrial Dust Collector
- 2 hp, 110v
- Two 4" inlets
- 1185 CFM
- 125 lbs.

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15" Scroll Saw
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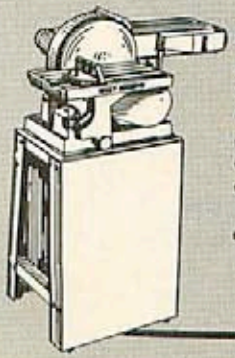

6" Belt Sander
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- 6" x 48" belt
- Cast iron construction
- 152 lbs.
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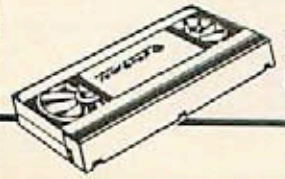

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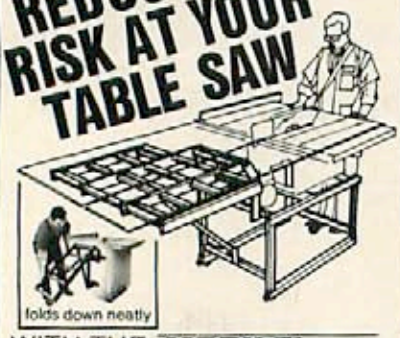

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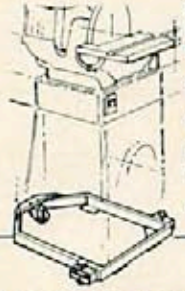

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Better Homes and Gardens®

WOOD®

This issue's cover wood grain: Sassafras

AUGUST 1988 **ISSUE NO. 24**

WOOD PROFILE

PADAUK: THE WOOD OF KINGS, RAILROAD TRAINS, AND MANY NAMES 25

From the chalices of emperors to Empire-style furniture and Pullman cars, padauk has won worldwide fame under assorted names.

SHOP-TESTED TECHNIQUES

17 WAYS TO TURN YOUR DRILL PRESS INTO A SHOP HERO 26

Dust off your drill press and explore some new ways to expand the versatility of a valued workshop friend. We also show you how to build four helpful jigs to make your drill press even more effective.

HEAVY HAULIN' LOWBOY AND DUMP TRUCK 32

Our fleet of heavy-duty toy trucks continues to grow! The newest additions, a lowboy and dump truck, share the same sturdy, simple tractor design.

DEVELOP YOUR SHOP SKILLS

THE PERFECT HINGE MORTISE 37

Learn how the pros give their hinged projects that "cabinet-quality look." We show you step-by-step how to cut hinge mortises.

CRAFTSMAN CLOSE-UP

SHE PAINTS WITH WOOD 38

Feast your eyes on some remarkable wood mosaics crafted by Texas artist Judy Gale Roberts. And don't miss the exclusive pattern Judy created for *WOOD* magazine readers.

MAKE YOUR BEST PROJECTS PICTURE-PERFECT 44

Even though you've rubbed on that final coat of wax, your project isn't "finished" yet! Learn how to make stunning pictures of your best handiwork.

A TERRIFIC TRIO

SUNBURST SINK BOARD 50

Laminate maple and walnut strips to create the cheeriest board this side of sunrise.

ART-DECO CHEESE BOARD 54

Step back into the past with our handsome board reminiscent of the 1920s and 30s.

TEXAS TOAST CUTTING BOARD 55

Take a small bite out of an evening and whip up our sandwich board for your next gathering.

TOOL BUYMANSHIP

THE HOLE STORY ABOUT TODAY'S DRILL PRESSES 56

Even though one Taiwanese plant produces most of the drill presses on the U.S. market, there are differences you should consider before buying. We tested 10 popular benchtop and floor models priced under $800.

TRIPLE-CROWN SAWHORSE 62

This sawhorse wins on all counts—it's sturdy, attractive, and adjustable. Build our design from a 2x4, a little maple, and less than a 4x8′ sheet of plywood.

KEEP SAFETY IN SIGHT 64

If comfort and appearance have kept you from wearing safety glasses, you've run out of excuses. See what's offered in your price range.

PLANTERS APLENTY 68

Readily available, durable cedar fencing makes our trio of planters a handsome set for any patio. They're affordable, too—for about $90, you can knock out this set in no time at all.

SHORT-SUBJECT FEATURES

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Tips From Your Shop (And Ours) 16
Products That Perform 20
Project Showcase 48
Drill Press Grinding Jig 74
Carving Pattern 76
Finishing Touches 96

WOODWORKS

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		Qty.	Total
3-1/2" Maple Shaker Pegs	$20.00/100		
2-1/2" Stubbie Peg	16.00/100		
Medium Shaker Peg	15.00/100		
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2-7/16" Tie Rack Pegs	7.00/100		
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1-1/4" x 1/4"	9.00/100		
1-1/4" x 1/2"	11.00/100		
1-3/4" x 1/8"	3.50/25		
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Small Eggs 1-3/8" x 2"	25.00/100		
5/8" Mini Eggs	10.00/100		
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1-1/2" Toy Wheel	10.00/100		
Axle Peg	4.50/100		

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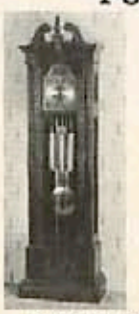

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312	Offset trimmer	132
314	4 1/2" Panel saw	124
319	Tilt base trimmer	139
330	Block Sander	54
345	NEW! Saw Boss	109
361	3x24 Belt Sander	179
363	4x24 Belt Sander	189
504	HD 3x24 Sander	332
505	1/2 Sheet Sander	109
513	Lock Mortiser	679
518	3 HP Spotronic Router	329
520	3 HP Router	299
555	NEW! Plate joiner	159
627	2 speed Tiger Saw	135
690	1 1/2 HP Router	129
5060	NEW! Stair Templates	135
7538	1/2" Right Angle Drill	189
7564	1/2" Spade Handle Drill	149
9100	7/8 HP Classic Router	129
9116	Porta Plane w/case	189
59361	Hinge temp. w/case	149
59839	Hinge temp. access.kit	99
43263	Carbide cutter for #126 Porta Plane	49

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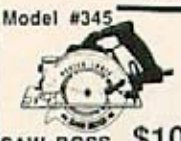

SAW BOSS $109

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52"	Commercial System	269
52"	HomeShop System	219
40"	HomeShop System	199
28"	HomeShop System	189

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DRC10	3/8" Cordless Drill	89
D10DC	same as DRC10 w/VSR	99
TR12	3 HP Plunge Router	179
PDL180	7" Disc Grinder	119
C10FA	10" Miter Saw	269
CR10V	Var Spd Recipro Saw	109
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PDM 100C	4" Mini Grinder	55
PDM 125C	5" Mini Grinder	65

MAKITA BATTERY PACK SPECIAL

9.6 VOLT	29
7.2 VOLT	26

Milwaukee Tools

6511	2 spd Sawzall w/case	119
0226-1	3/8" VSR Drill	89
0232-1	3/8" VSR Drill	98
0234-1	1/2" VSR Magnum Drill	109
0235-1	1/2"Keyless Magnum Drill	128
0239-1	1/2" Keyless Drill	122
0567-1	Drain Cleaner Kit	229
1007-1	1/2" Drill 0-500 rpm	148
1250-1	1/2" D Handle Drill	139
1610-1	1/2" Spd Handle Drill	139
1630-1	1/2" Compact Drill	148
1670-1	1/2" Hole Hawg	195
3002-1	Electricians Rt Angle Drill	179
3300-1	Right Angle Magnum Drill	195
5392	3/8" Hammer Drill	127
5347	1 1/2" Rotary Hammer	399
5399	1/2" Hammer Drill	179
5455	7"/9" Polisher	136
6012	1/3 sheet Orb Sander	118
6016	Block Sander	47
6215	15" Electric Chainsaw	149
6234	Var Spd PortaBandsaw	249
6377	7 1/4" Worm Drive Saw	169
6511	2 spd Sawzall w/case	119
6539	Cordless Screwdriver	69
6563-1	0-1000 rpm Screwdriver	159
8975	Heat Gun	59

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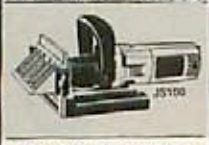
Carbide

LM72M010	10x24T Rip	39
LU73M010	10x60T ATB	39
LU82M010	10x60T TCG	45
LU84M011	10x50T Combo	59
LU84M012	12x60T Combo	69
LU85M010	12x60T ATB	59
LU85M014	14x100 ATB	99
PS303	7¼"x40 ATB	24
PS306	10x40 ATB	29
DS308	8" Dado set	109
FB100	16 pc Forstner Bit Set	145
DB050	50 pc Drill Bit Set	59
99-100	15 pc Router Bit Set	149

94-100	5 pc Raised Panel door router bit Set	149
SC001	Blade Sharpener	17
EC250	Stile&Rail Shaper Set	165
EC900	Shaper Door System	385
EC210 thru EC213	Raised panel shaper cutters...each	89
99-210 thru 99-213	Raised panel router Bits...each	58
99-034	Lock Miter Router bit	59
99-261	Ogee Stile and Rail set	83
99-263	Cove/Bead Stile&Rail	83
99-PK1	Multiform Router bit	75
WB 101	Woodworking Box	277

NEW! From Freud



Biscuit Joining Machine comes with carbide blade assortment of biscuits instructions & case

JS100 price $164

0-10-20	1000 biscuits	29.50
1000 Mixed biscuits		32.00

RYOBI POWER TOOLS

AP10	10" Surface Planer	359
E3800	0-4000 Drywall driver	79
E3810	0-2500 Drywall driver	79
JSE60	Var. Spd Jig Saw	119
RJ100VK	V5 Recipro Saw	109
S500A	Block Sander	39
SP1800A	7" Sander/Polisher	129
TR30U	Laminate Trimmer	84
TS251U	10" Miter Saw	179
TS380	14" Miter Saw	359
W2015	16 1/4" Bevel Saw	329
RA200	8" Portable Radial Arm	249
RD10SR	Cordless Screwdriver	47
R500	Plunge Router	169
X2546	AP10 Planer Blades	29

Skil Tools

77	7 1/4" Wormdrive Saw Golden Anniv. Mod.	134
5150-7	7 1/4" Circ Saw 2 1/8 HP	84
5510	5½" Circular Saw	79
597	3/8" Vsr Drill	59
6533	3/8" Var Drill 0-5 Amp	79
6635	3/8" Var Drill 5.0 Amp	109
6650	1/2" Var Drill 5.0 Amp	114
7565	Palm Sander	35
2735-04	VSR 3/8" Cordless drill 12 Volt w/ Extra Batt & case	139

Makita

1100	3 1/4" Planer w/case	187
1900BW	3 1/4" Planer kit	134
2708	8 1/4" Table Top Saw	229
3601B	1 3/4 HP Router	129
3612BR	3hp Plunge Router	189
3612B	same + Square Base	169
4200N	4 3/8" Trim Saw	109
5077D	7 1/4" Hypoid Saw	149
5081DW	3 3/8" Cordless Saw	125
5402A	16 3/4" Recip Saw	379
5600DW	6 1/4" Circ Circ Saw	169
6012HDW	3/8" Cordless Screwdrill	114
6093DW	3/8" VS Circ Screwdrill	114
6093DW	same w/clutch	129
6510LVR	3/8" VSR Drill	69
6800DBV	0-2500 Drywall gun	89
6905B	1/2" Impact Wrench	165
6906	3/4" Impact Wrench	319
6419B2W	3/4" Hammer Drill	149
9030	1" Belt Sander	139
9207SPB	7" 2 Spd Sander/Polish	149
9501BK	4" Mini Grinder	75
9820-2	Blade Sharpener	169
9924B	3x24 Belt Sander	139
DP4700	1/2" VSR Drill	107
JR3000V	V.S Recipro Saw	124
Carbide Panel Blades for MAKITA	1100 &1900B	29

3 HP Router
Square Base
3612B
$169

MAKITA CORDLESS TOOL ONLY

4300D	9.6V Jig Saw	59
6012HD	9.6V 3 Spd drill w/clutch	59
6093	9.6v VSR w/ clutch	69
DA3000D7	3v right angle drill	79

Compressors
3/4 H.P. 115 Volt 125 PSI

AM39-HC2	1.5 Gal Single Tank	259
AM39-HC4	3.8 Gal Twin Tank	279
AM39-HC4V	3.8 Gal Twin Tank	279

1.5 H.P. 115 Volt 125 PSI

AM77-HC2	1.5 Gal Single Tank	275
AM77-HC4	3.8 Gal Twin Tank	299
AM77-HC4V	3.8 Gal Twin Tank	299

Hand Carry - 41 to 54 Pounds
All Models come with Pr. switch, on/off sw. pressure guage, tank drain and regulator/shutoff valve.

BLACK & DECKER

3310	1 1/2 HP Router	119
1179	3/8" Drill 0-1200	79
1980	3/8" Cordless drill	99
1987	3/8 Vsr Cordless drill	119
3051	7 1/4" Wormdrive Saw	119
3103	2 Sp Cutsaw w/case	89
4010	Palm Sander	39
6513	1/2" dr. Impact Wrench	119
98003	Cordless Drill Batty	38

SENCO

LSII	Brads 5/8" to 1"	229
SFNI	Finish Nailer 1" to 2"	259
SFNII	Finish 1-1/2" to 2-1/2"	349
SKS	Narrow Crown Stapler	229

Call for other Nail Gun Prices

Model#1604
1 3/4 HP Router
$119

Bosch Power Tools

1581VS	Orbital Action Jig Saw	129
1198	1/2" Hammer Drill	137
11203	1 1/8" Roto Hammer	429
11212	3/4" VSR Roto Hammer	199
11305	30 lb Demo Hammer	695
1604	1 3/4 HP Router	119
1604	3/8" VSR Mixer Drill	89
1608T	Tilt Base Lam Trimmer	89
1609K	Lam Trimmer Kit	155

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THE EDITOR'S ANGLE

IF YOU OWN A DRILL PRESS, YOU NEED THIS CHART

If you're like most woodworkers, you have at one time or another ruined an expensive drill bit or cutter by running it at too high a speed in your drill press. So how do you go about finding out the recommended operating speed for any given tool so this doesn't happen? Up until now, it's been almost impossible!

Initially, we figured that a few quick calls to some drill-bit manufacturers would turn up all the information we needed. Were we ever wrong! It seems that no one has ever charted drill press speeds to the extent that we think necessary.

We ran our tests on the specially outfitted Delta radial press shown *below*. (We relaced its original AC motor with a DC motor, added an electronic speed control, and measured chuck rpm at each belt setting with a tachometer to verify the results.)

Staffers Jim Boelling, Bill Krier, and Jim Downing talk test results in the WOOD magazine shop.

The test itself consisted of drilling four holes with each bit in six materials to look for excessive heat build-up. A special thanks to Freud, Morris Tool Company, Black & Decker, Woodcraft Supply, Leichtung Workshops, and Northwest Carving Supplies for sending in products to test. We appreciate your help.

Why didn't we just print this information in the magazine? Two reasons actually. First, we know you don't like to tear pages out of *WOOD*® magazine. And second, this data needs to be near your drill press. We've printed the charts on heavy stock and added a metal eyelet at the top to make it easy to hang or pin up. Our staff hopes that the chart serves you well for many years.

To order your drill press speed chart, send $1 for postage and handling to:

DRILL PRESS SPEED CHART
WOOD® Magazine
Locust at 17th
Des Moines, IA 50336

Larry Clayton

...ON ADVANCED LASER-CUT BLADES!

Laser Cut Blade Bodies

Laser Technology allows Freud to produce one of the quietest running, safest, and accurate running saw blades in the world.

Expansion slots on the Freud industrial saw blade are cut with a laser and are only .003 or less wide (about the thickness of a human hair). This assures tensioning strength for a true cut. It creates a quieter blade because there are no large holes or wide expansion slots for the air to whistle through. It guarantees a safer saw blade as there are no plugs in the expansion slot that can fly out when the blade is in use.

With this advanced technology, all shoulders and gullets are identical in shape and most important strength. The arbor holes are perfectly centered and rounded by precision grinding. An extra step to guarantee a true running blade.

Special Carbide Mix

Freud produces a special mix of carbide at their own factory. It is produced from titanium and carbon using cobalt as a binder. Producing this important part of the saw blade within their own factory assures the consistency and quality needed to hold a sharp edge.

The carbide is induction brazed onto Freud's laser produced blade bodies. This process is computer controlled to guarantee uniformity of brazing. A razor edge is then put on the teeth with a 400 grit diamond wheel. This guarantees you of a blade that will provide a maximum of production hours before sharpening is needed.

Item No.	Diameter	Teeth/ Grind	General Purpose	Cross Cut Wood	Plywood	Plastic	Rip Wood	List	Sale
LM72M008	8	24 Rip						68.48	51.48
LM72M010	10	24 Rip	NR	NR	NR	NR	E	77.93	50.68
LM72M012	12	30 Rip						104.03	65.98
LU78M008	8	64 TCG						112.57	93.98
LU78M010	10	80 TCG	G	G	E	E	NR	140.63	104.48
LU78M012	12	96 TCG						169.29	135.68
LU78M014	14	108 TCG						199.80	141.98
LU84M008	8	40 Comb						85.96	59.58
LU84M009	9	40 Comb						85.31	59.58
LU84M011	10	50 Comb	E	G	G	NR	G	89.54	52.18
LU84M012	12	60 Comb						135.31	97.98
LU84M014	14	70 Comb						161.34	116.48
LU85M008	8	64 ATB						112.08	73.98
LU85M009	9	72 ATB						122.56	76.98
LU85M010	10	80 ATB	NR	E	G	G	NR	133.25	85.58
LU85M012	12	96 ATB						161.40	114.98
LU85M014	14	108 ATB						179.06	124.88

E = Excellent G = Good F = Fair NR = Not Recommended
8", 9", and 10" have 5/8" Bore.
12" and 14" saws have 1" Bore.

...ON ADVANCED LASER-CUT DADO SETS!

		Bore	List	Sale
DS306	6" set	5/8"	176.54	110.98
DS308	8" set	5/8"	216.18	118.98

Freud Carbide Tipped Dado Sets will produce a smooth and accurate groove when cutting either with or across the wood grain. Properly stressed and tensioned outside blades feature extremely sharp and steeply beveled carbide teeth that leave clean edges.

The laser cut blade bodies ensure the quietest running dado you can buy.

The 4 chippers and 2 outside blades can cut a width up to 13/16 of an inch. Can be used on softwood, hardwood and veneered plywoods with excellent results.

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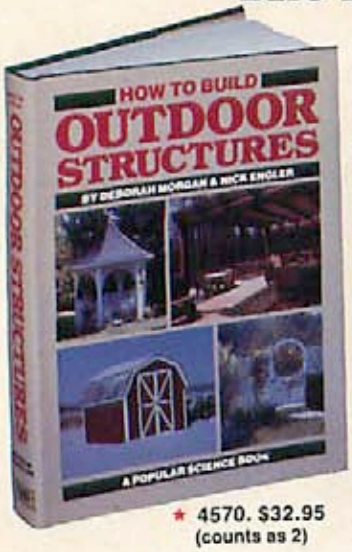

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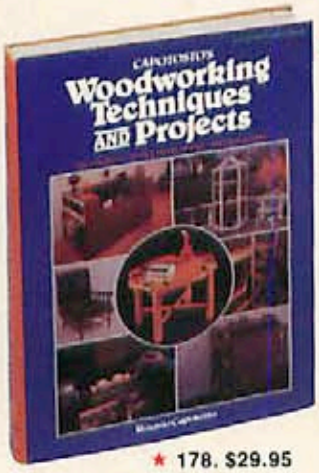

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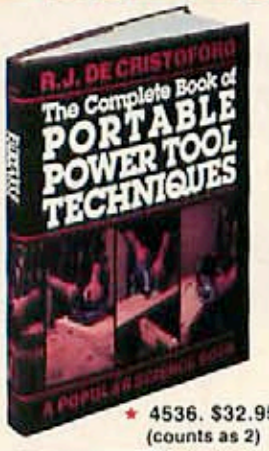

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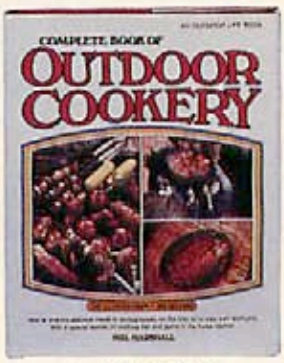

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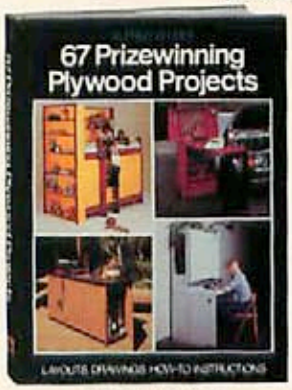

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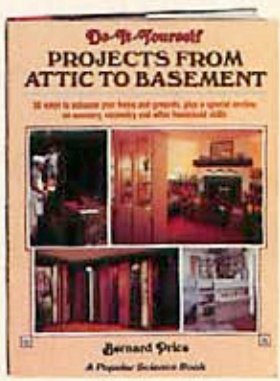

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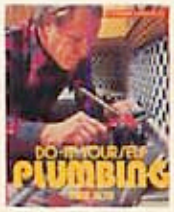

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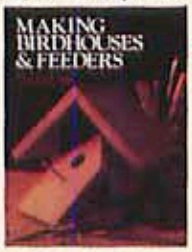

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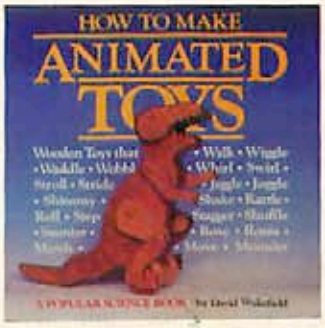

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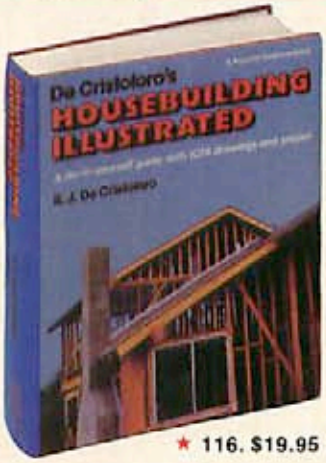

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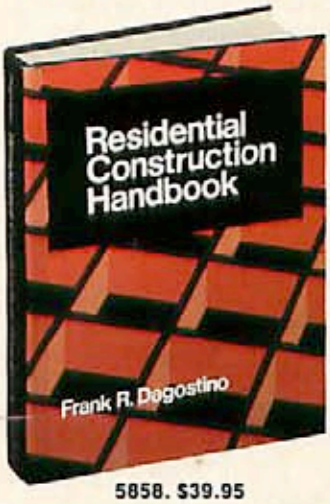

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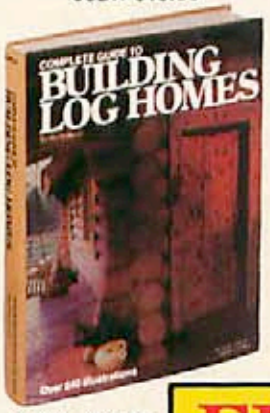

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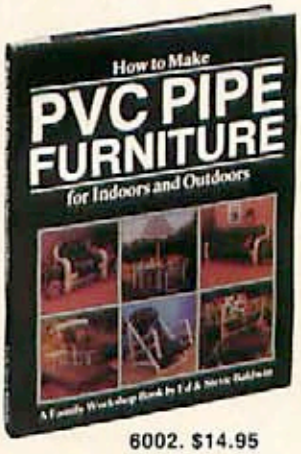

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		ROUND OVER				
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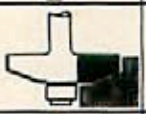
	#07	5/32" R	5/32"	1¼"	15/32"	18.00
	#08	1/4" R	1/4"	1½"	3/4"	20.00
	#11	3/8" RABBETING	Deep 3/8"	1¼"	1/2"	14.00
	#09	1/8" (KERF) SLOT CUTTER		1¼"	1/8"	14.00
	#10	1/4" (KERF) SLOT CUTTER		1¼"	1/4"	14.00
	#12	45° CHAMFER	45° Angle	1½"	5/8"	15.00
	#15	RAISED PANEL	20° Angle	1-5/8"	1/2"	25.00
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	#16	3/8" Dovetail 9°		3/8"	3/8"	7.50
	#17	1/2" Dovetail 14°		1/2"	1/2"	8.50
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	#19	3/8" Core Box	3/16"	3/8"	3/8"	11.00
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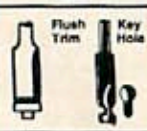	#13	1/2" FLUSH TRIM		1/2"	1"	8.50
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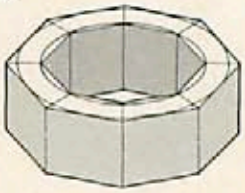
TALKING BACK

We welcome comments, criticism, suggestions . . . even an occasional compliment. The volume of mail we receive makes it impossible to answer every letter, but we promise to do our level best.

Send your correspondence to: Letters Editor, Better Homes and Gardens® *WOOD*® Magazine, Locust at 17th, Des Moines, IA 50336.

CUT, BUT NOT FORGOTTEN!



Often, when we do research for our articles in *WOOD* magazine, we consult people we know in the woodworking field. That was the case recently as we prepared the "Basic Stave-Bowl Construction" article that appeared in our June 1988 issue. We received some excellent input from a couple of our California woodturning friends, Yosh Sugiyama from Redding and Andy Goldman from Placentia. Both of these gentlemen provided us with useful background information, and for that we thank them. We also apologize for accidentally omitting their names from the credit line at the end of the stave-bowl article. We do appreciate your help, guys.

COMBINATION MACHINES UPDATE

Zinken International, manufacturers of the MIA 6 and ZC 21 featured in the April issue of *WOOD* magazine, has closed its U.S. operations. We have no further information available at this time.

Toolmax changed its mailing address to P.O. Box 539, Murphys, CA 95247. You can reach a representative at 209/728-3417 or toll-free at 800-535-4788 (California residents call 800-325-8330).

We incorrectly listed the weight of the Kity K5 in our comparison chart. The correct weight is 165 pounds.

MORE THAN ONE WAY TO CANE A CHAIR

In separate letters commenting on the trimming technique we used in our June 1988 article, "Recane a Chair in a Jiffy," two readers suggest a different approach. Edward M. Tansey of Wakeman, Ohio, and Wendell J. Kopp of Oak Ridge, Tennessee, prefer to trim the excess cane deep in the groove before fitting in the spline. They suggest tapping the webbing firmly in the groove, trimming the excess material with a sharp wood chisel, applying woodworker's glue, and then driving in the spline. We trimmed the excess webbing after applying the glue but before tapping the spline all the way in groove. Our local caning expert taught us to trim away any "fuzz" after fully seating the spline because the danger does exist that a beginner may trim the cane too short, allowing some to escape and not fully line the spline groove. We took our final picture before removing unsightly remnants.

Continued on page 12

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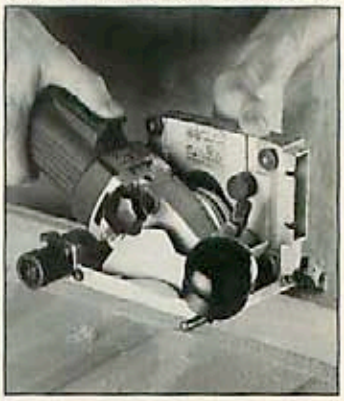
TALKING BACK

Continued from page 10

MORE THAN A PLATE JOINER



The Elu 3380 joiner/spliner

I read with a lot of interest the "Plate Joiners" article in the June, 1988, issue of *WOOD* magazine. The article did an especially good job of describing the ease of making biscuit joints and the relative strength of those joints versus ordinary wood screws or dowels.

However, I take issue with the article's assertion that plate joiners are ". . . limited to reinforcing flush (butt and miter joints) . . ." The Elu 3380 actually is two machines—a joiner and a spliner—as a result of Elu engineers identifying woodworker's needs.

It was pointed out in the article that the Elu can cut continuous grooves for splines. It also should be noted that the ability to adjust the cutting blade's lateral position relative to the locating face of the tool allows for accurate positioning and width control of the groove so that, for example, a drawer bottom could be installed in a biscuit-joined drawer frame.

The Elu 3380 also has continuously variable depth of cut settings from 0 to 22 mm (0 to approximately 7/8"). This feature allows for very accurate depth control of spline grooves; and further, the 7/8" depth of cut allows for trimming 1" finished material.

Since you tested the Elu 3380, we have improved the design to incorporate small spurs on the faceplate to grip the wood when biscuit joining. The pins can be removed for splining and cutoff jobs.

—Clay Furtaw, Group Product Manager, Black & Decker

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If a customer requests a color other than white, I mix about 3 parts of white primer with 2 parts of the desired color. The tinted primer provides an adequate base for the polyurethane topcoat.

—Danny S. Ward. Spanish Fort, Ala.

As president of an Oriental importing company, you must know a lot about rattan and wicker! Rattan and wicker continue to be popular for home furnishings. We appreciate your suggestion.

Continued on page 15

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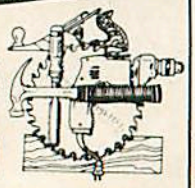

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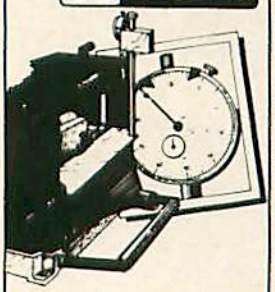

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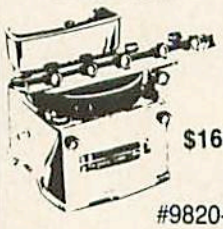

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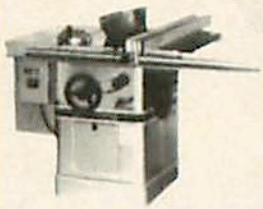

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TALKING BACK

Continued from page 12

THE END OF AN ERA—AGAIN?

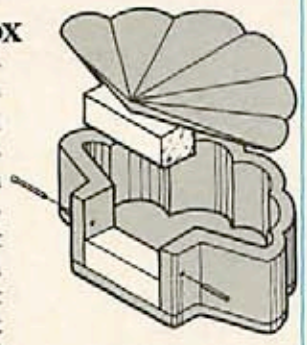
Paul Dicob rides a log wagon through the woods.

Because I'm interested in traditional woodworking methods, and also live in the Adirondack region, your April 1988 article about Paul Dicob, "Horse Logging in the Adirondacks," intrigued me.You gave me an insight into the older method of harvesting timber. After reading the story, I was thrilled to learn that some people still believe in tradition and can make it turn a profit for themselves. However, a short time later, a local newspaper carried an article stating that Paul was out of business due to high liability insurance premiums. As more and more of the Paul Dicobs of this world are lost, we lose more and more of our heritage.

—David McKane, Moira, N.Y.

David, we echo your concern. When we visited Paul working his draft horses amidst the hemlocks in May, 1987, he never indicated increasing insurance costs were a problem. In fact, he predicted a bright future for "a man and a team," so we were surprised at his decision to quit logging with his Belgians. Paul says, "Yep, insurance costs were really agoin' up, so I sold my teams. But, I keep gettin' calls for horses, so maybe I'll be getting back in it."

IMPROVED SCALLOP BOX



While building the band-sawed scallop boxes (February 1988 issue), I discovered a way to prevent small objects such as paper clips and pins from getting trapped under the wooden hinge. I first cut the hinge block in half on the vertical midpoint at about $^{13}/_{16}$" [see drawing at *right*]. Then I repositioned the hinge pin and round-over accordingly, and glued the bottom half of the original hinge to the box.

—Dick Breil, Riverview, Mich.

We agree with your fine suggestion, Dick. Thanks for sharing it with our readers.

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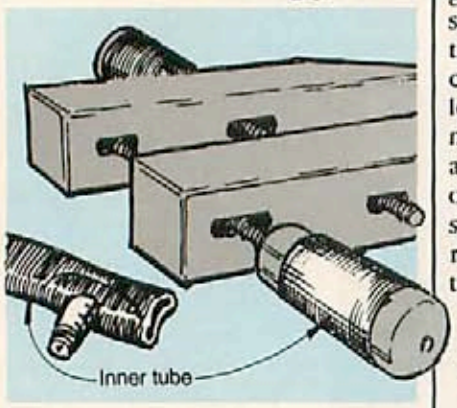
GET A GRIP ON HANDSCREWS

You can apply a moderate amount of torque with handscrew handles, but most of us have difficulty bearing down on the smooth handles.

TIP: Bicycle inner tubes provide an inexpensive, quick solution to this gripping problem. Use baby or talcum powder to help stretch and position the inner tube.

—Calvin H. Henne
Bridgeport, Neb.

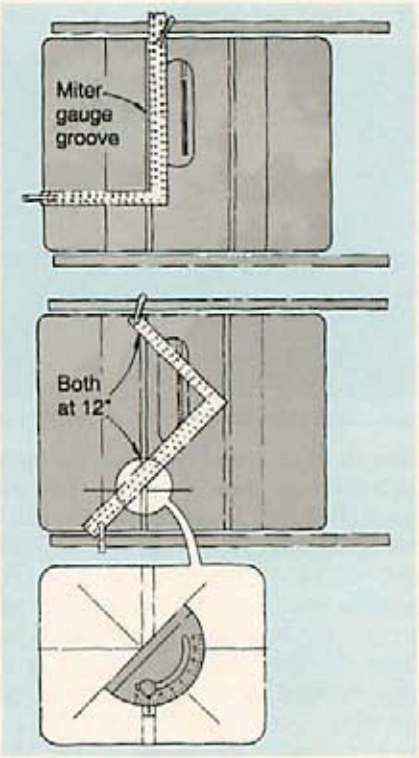


FOLLOW SOME BASIC LINES ON YOUR SAW TABLE

Aligning the ripping fence truly perpendicular to the blade of your table saw can be pretty iffy—especially with a narrow or loosely fitting fence. Similarly, accurately setting a 45° angle on a miter gauge can be tricky.

TIP: Clamp a carpenter's square at a right angle to the miter-gauge groove, top drawing, *right,* and score a fine line in the surface of the table with a steel scriber. Next, clamp the square in place so the legs of the square are equally long, middle drawing, *right,* and scribe another line that intersects the first one at 45°. Finally, flip over the square, clamp in place at the correct diagonal, and scribe a third time. This provides you with accurate reference lines for setting your miter gauge at the three most common angles.

—From the WOOD *magazine shop*

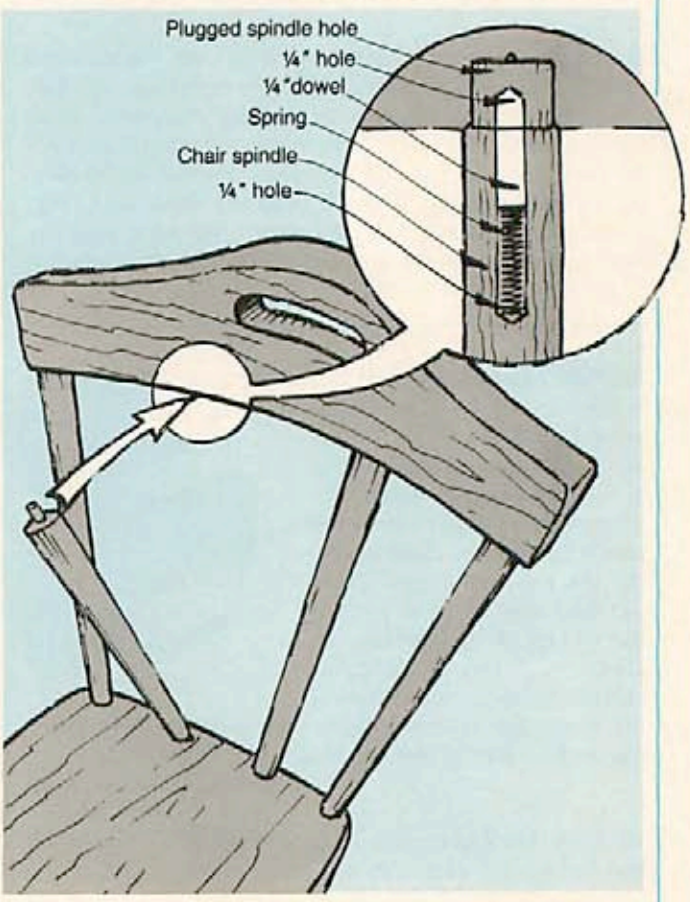


PUT A LONG MEMBER IN A SHORT SPACE

Occasionally the rung in the back of a chair or a stretcher between chair legs will break, even though all the chair's joints remain tight. At first glance, replacing the broken member seems to require disassembling an otherwise healthy chair.

TIP: Turn a replacement part or use the old one if it can be repaired. You may need to shorten one tenon so you can wiggle the damaged piece into the original position. Remove the shortened piece. Drill a ¼" hole in the center of the shortened tenon deep enough to accept a 2"-long dowel and a ballpoint pen spring. Next, bore a ¼" hole at least ½" deep in the middle of the rail as shown in the drawing at *right.* Apply glue to both ends of the rung and slip into place as you would reload a roll of toilet paper. The spring will push the dowel into place and, when the glue sets, the dowel will make the repair permanent.

—Earl W. Zieg, Fairfax, Va.



Do you have any good tips you'd like to share with our readers? We'll pay you $25 for each submission we publish. No shop tips can be returned. Mail your tips to:

Shop Tips
Better Homes and Gardens®
***WOOD*® Magazine**
Locust at 17th
Des Moines, IA 50336

Continued on page 18

WOODWORKERS HARDWARE
WHOLESALE ORDER FORM

Projects you can build in a single evening

Parts and Plans for making your own Musical Door Harps

Grocery List Project

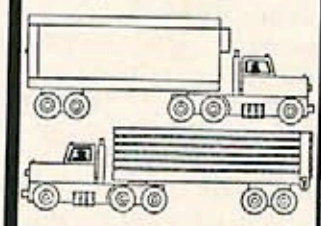
You can make these 16" high Grocery List Projects from standard 3/4" thick lumber.
We supply the Full Size blueprint together with enough Grocery Lists (500 sheets) and Brass Plated Bolt Sets (10 sets) to make 10 projects. Grocery Lists are 11" long and are printed on peach colored paper with a rich brown ink.
#7453 Country Grocery List Package.....$14.55/EA

Doll Stroller

Build this Doll Stroller from 3/4" pine and 1/4" plywood. Extremely easy to build from our Huge Plan Set. Fits 15" high dolls.
#W124 Doll Stroller Plan $3.50/EA

Hardware Kit
Special Kit includes 4-1/2" stroller wheels, axles, wood spindles, screws, wood plugs, and dowel rod. Plan and other wood parts needed are not included with kit.
#1538 Doll Stroller Hardware Kit $5.22/EA

Best Toy Truck Plans



Build from "2x4" and 3/4" stock. Huge 22" x 34" plans for 2 trucks.
#W144 Truck Plans.....$4.00/EA

Truck Hardware Kit

48 piece kit includes 2" wood wheels, axle pegs, window decal set, and misc. wood turnings for head lights, clearance lights radiator cap, gas tanks, and differential cover. Enough hardware pieces to build one truck from plan above. Plan and other wood parts needed are not included with kit.
#1950 Truck Hardware Kit.....$7.50/EA

Hardwood Toy Wheels

#W075100 3/4".....$3.50/100
#W087100 7/8".....$4.70/100
#W100100 1".....$6.00/100
#W125100 1-1/4".....$8.00/100
#W150100 1-1/2".....$11.00/100
#W175100 1-3/4".....$15.60/100
#W200100 2".....$19.50/100
#W22520 2-1/4".....$7.30/20
#W25020 2-1/2".....$8.80/20
#W27520 2-3/4".....$10.20/20

Axle Pegs

#AP1 Fits 1"-2".....$4.10/100
#AP4 Fits 2-1/4" - 2-3/4".....$1.80/20

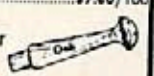
2" Wood Wheels With Tread Grooves

#705020 Front.....$6.30/20
#7050100.....$25.50/100
(Order #AP4 Peg for above)
#705120 Dual Rear.$10.50/20
#7051100.....$42.90/100
#AP5 Axle Pegs for Dual Rear Wheel.....$1.98/20
.....$9.00/100

Birch Shaker Pegs

#7226 3-1/2".....$15.00/100
#7280 2-1/2".....$1.90/10
.....$13.90/100
#7227 1-3/4".....$1.10/10
.....$7.60/100

Oak Shaker Pegs

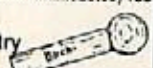


#SKP2 3-1/2".....$3.35/10
.....$28.00/100
#7261 1-3/4".....$2.00/10
.....$15.00/100

Mug Pegs

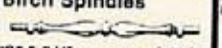
#MGP1 3-3/8".....$2.70/10
.....$25.00/100

Birch Country Pegs



#1770 3-1/2".....$1.80/10
.....$13.00/100

Birch Spindles



#S6 5-3/4".....$.49/ea
#S85 9".....$.85/ea
#S110 11".....$1.35/ea

Birch Dowel Pins

#1142 1/4" x 2".....$1.90/100
.....$8.50/500
#1382 3/8" x 2".....$2.00/100
.....$9.25/500

Oak or Birch Galley Spindles

#S1 Birch 1-1/8".....$1.30/10
.....$9.00/100
#S4 Birch 1-1/2".....$1.70/10
.....$15.60/100
#S1OAK 1-1/8".....$1.50/10
.....$12.00/100
#S4OAK 1-1/2".....$2.40/10
.....$22.00/100

Birch Screw Hole Buttons

#1432 3/8".....$1.76/100
.....$7.50/500
#1434 1/2".....$1.76/100
.....$8.00/500

Oak Screw Hole Buttons

#1452 3/8".....$3.70/100
.....$15.50/500
#1454 1/2".....$3.80/100
.....$16.00/500

Birch Candle Cups

#7290 1".....$2.00/10
.....$13.00/100
#CCI 1-1/2".....$2.90/10
.....$19.00/100

2" Brass Eagles

#878.....$2.49/10

Quartz Clock Movement W/Hands

#Q82 1-4.....$6.48/ea
5-9.....$5.10/ea
10-24.....$4.55/ea
25 +.....$3.95/ea

Push-Thru Lamp Socket

#940.....$1.59/ea

Lazy Susan Bearings

#LC3 3".....$.95/ea
#LC4 4".....$1.25/ea
#LC6 6".....$2.25/ea
#12C 12".....$5.99/ea

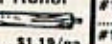
Clipboard Clips

#L5 3".....$.55/ea
#ST6 6".....$.75/ea

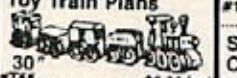
Magnetic Strip

#120A 120" x 1/2".....$4.40/roll

Paper Towel Roller (spring loaded) #7238.....$1.19/ea



Toy Train Plans



30"
#T55.....$6.99/set

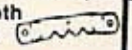
Picture Hangers

#923 1-7/8".....$4.70/100

Mini Hanger

#7247 5/8".....$2.60/100

Saw Tooth Hangers

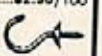


#559 1-5/8".....$4.17/100
#560 2-3/4".....$4.50/100
#406 Self-Fastening Hangers.....$4.77/100

Prong Hanger

#7248.....$2.90/100

Solid Brass Cup Hooks



#812 1/2".....$5.55/100
#858 5/8".....$6.30/100
#834 3/4".....$7.45/100

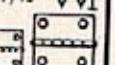
6" Brass & Porcelain Hooks

#6417 3 Prong.....$5.85/ea
#6416 2 Prong.....$2.97/ea

Black Hammer Hinge w/Screws

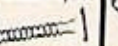
#1730.....$1.62/2
.....$7.17/10

Brass Plated Hinges



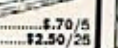
#910 1".....$1.49/10
#928 1-1/2".....$2.39/10
Screws for Above
#F124.....$2.40/100

Production Screws



#6277 1-1/4" x #6.$1.70/100
#6278 1-5/8" x #6.$1.90/100
#6279 2" x #8.....$2.50/100
#6282 3" x #8.....$4.75/100

36" Birch Dowel



#7160 1/8".....$.70/5
.....$2.50/25
#7161 3/16".....$.90/5
.....$3.75/25
#7162 1/4".....$1.25/5
.....$5.00/25
#7163 5/16".....$1.50/5
.....$6.50/25
#7164 3/8".....$1.75/5
.....$7.50/25
#7166 1/2".....$2.50/5
.....$11.25/25
#7167 5/8".....$3.40/5
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.....$23.75/25

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.....$5.90/10
#1663 1-1/4".....$.89/EA
.....$7.17/10

Sanding Belt Cleaner 8"

#1710.....$5.37/ea

GOOSE DOOR HARP KIT

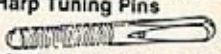
This kit contains all hardware and 1/8" plywood for building this loveable Goose Door Harp. Full Size plans. Project requires some 3/4" pine (not included). Kit is not precut, some sawing required. You get 8 tuning pins, music wire, 4 clapper balls, plastic eyes, 1/8" thick plywood for front and back, plus complete plans and instructions.
#7640 Goose Door Harp Kit.....$5.25/Kit

#W220 Plans for 6 Door Harps
$6.00 For all 6 Plans

Door Harp Music Wire

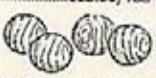
Each string is approximately 36" long. Order at least one string for each door harp you want to build.
#7288 Door Harp Music Wire....$.35/EA
.....$3.00/10
.....$25.00/100

Door Harp Tuning Pins



Nickel plated, approximately 1-3/4" long. Threaded end can be turned into 3/16" hole.
#7291 Door Harp Tuning Pins....$.35/EA
.....$3.00/10
.....$25.00/100

Clapper Balls



#1342 3/4" Dia. Wood Ball.....$1.30/10
.....$9.90/100

Door Harp Plywood

1/8" x 12" x 18" plywood, use for Front of Door Harp.
#7384 Plywood.....$3.00/Sheet
2-9 Sheets.....$2.40/Sheet
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TIPS FROM YOUR SHOP (AND OURS)

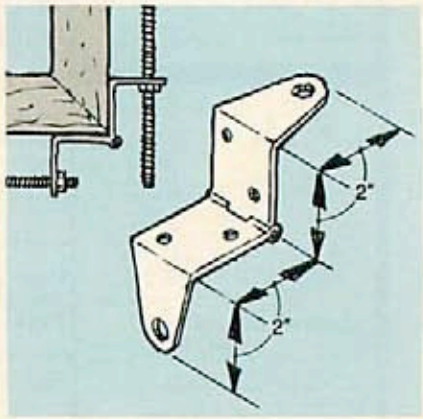
Continued from page 16

INEXPENSIVE FRAME CLAMPS FROM CABINET HINGES

Relatively high cost keeps some woodworkers from appreciating the convenience of commercially available picture-frame clamps. Here's a picture-perfect solution.

TIP: Make this picture-frame clamp with four 4" strap hinges, four 18" lengths of 5/16" threaded rod, and 12 nuts. First, at the ends of the hinges, ream holes large enough to accept the threaded rods, and then bend right angles into the leaves as shown. For assembling smaller picture frames, you may wish to cut a set of shorter threaded rods.

—George A. Heffelfinger
Lehighton, Pa.

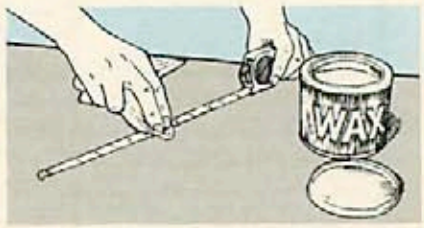


Rx FOR BALKY TAPE MEASURES

With extended use, metal tape measures get gummed up and no longer retract smoothly. Moreover, the painted markings wear thin.

TIP: Pull the tape all the way out and apply a thin coat of auto body wax to both sides. When you roll up the tape, the wax will protect the markings on the face of the tape while lubricating the inner mechanism so it works smoothly.

—D. Roboway
Winnipeg, Man., Canada



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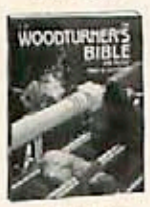

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The "Traveler" series from Warren Tool Co. contains six gouging blades and, depending upon which kit you choose, a variety of whittling edges. We found the quality of steel in the blades to be first-rate. A little additional honing helped the factory-ground edge. To test the edge, we sliced through ½"-thick oak—there still was enough edge to shave the hair on a man's arm.

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Continued on page 23

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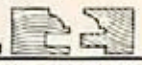
SY 1281 
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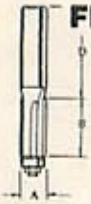
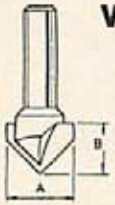
806	9/16	$8
810	3/4	$8
*810½	3/4	$8
*812½	1	$10

Flush Trimming



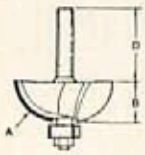
PART NO.	A	PRICE
S8012Y	3/8	$7
S8016Y	1/2	$8
*S8016Y½	1/2	$8
S8020	5/8	$10
*S8020½	5/8	$10

Vee Groove Bits



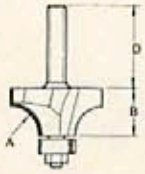
PART NO.	A	PRICE
S112	3/8	$10
S114	1/2	$10
S128	3/4	$12
*S128½	3/4	$18
S130	1	$20
*S130½	1	$24

Cove Bits



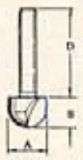
PART NO.	A	PRICE
S702Y	1/16	$11
S704Y	1/8	$11
S706Y	3/16	$11
S708Y	1/4	$12
S710Y	5/16	$12
S712Y	3/8	$12
S716Y	1/2	$13
*S716Y½	1/2	$14

Roundover



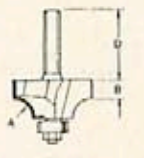
PART NO.	A	PRICE
S502Y	1/16R	$10
S504Y	1/8R	$10
S506Y	3/16R	$10
S508Y	1/4R	$10
S510Y	5/16R	$11
S512Y	3/8R	$13
S516Y	1/2R	$15
*S516Y½	1/2R	$15
*S520Y½	5/8R	$18
*S524Y½	3/4R	$18
*S528Y½	7/8R	$30
*S532Y½	1R	$30
*S536Y½	1-1/4R	$38

Core Box



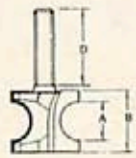
PART NO.	A	PRICE
S408	1/4	$9
S412	3/8	$10
S416	1/2	$11
S420	5/8	$12
S424	3/4	$14
*S424½	3/4	$14
*S432½	1	$15

Beading



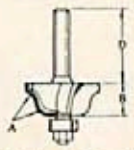
PART NO.	A	PRICE
S602Y	1/16R	$11
S604Y	1/8R	$11
S606Y	3/16R	$11
S608Y	1/4R	$12
S610Y	5/16R	$13
S612Y	3/8R	$15
S616Y	1/2R	$15
*S616Y½	1/2R	$15
*S624Y½	3/4R	$16

Bull Nose



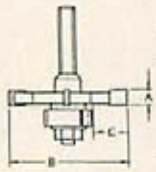
PART NO.	A	PRICE
SY9-1	1/4	$12
*SY9-1½	1/4	$12
SY-9-3	3/8	$14
*SY9-3½	3/8	$14
SY9-4	1/2	$14
*SY9-4½	1/2	$14
SY9-5	5/8	$15
*SY9-5½	5/8	$15
SY9-6	3/4	$15
*SY9-6½	3/4	$15
*SY9-8½	1	$17
*SY9-9½	1-1/8	$25
*SY9-10½	1-1/4	$30
*SY9-11½	1-1/2	$38

Roman Ogee



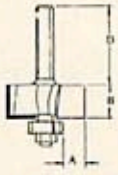
PART NO.	A	PRICE
S5705Y	5/32	$15
*S5705Y½	5/32	$15
S5708Y	1/4	$16
*S5708Y½	1/4	$16

Slot Cutter - 4 Flutes



PART NO.	A	PRICE
SY7002	1/8	$20
*SY7002½	1/8	$20
SY7004	5/32" (4mm)	$20
*SY7004½	5/32" (4mm)	$20
SY7006	3/16	$20
*SY7006½	3/16	$20
SY7008	1/4	$20
*SY7008½	1/4	$20

Slot Cutters/ Rabbeting Bit



PART NO.	B	PRICE
S1702Y	1/16	$10
S1704Y	1/8	$10
*S1704Y½	1/8	$10
S1706Y	1/4	$11
*S1706Y½	1/4	$11
S1708Y	3/8	$11
*S1708Y½	3/8	$11
S1712Y	1/2	$12
*S1712Y½	1/2	$12

*Indicates ½" shank.

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Continued from page 20

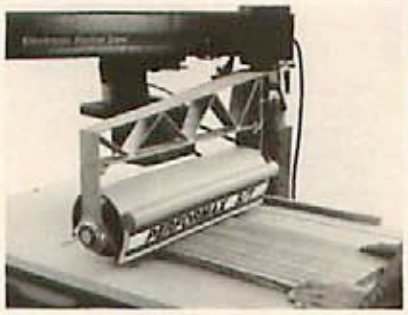
LEAVE YOUR MARK

There are many ways to leave your mark on your handcrafted treasures, but here is a high-tech version of a time-honored method — branding. Many of the nation's top woodturners prefer Woodwriter's fine-tipped woodburning pen.

At its hottest setting, the pen point turns red hot and quickly sears. A slightly lower setting, when the tip glows light reddish to orange color, is preferable for most signing jobs.

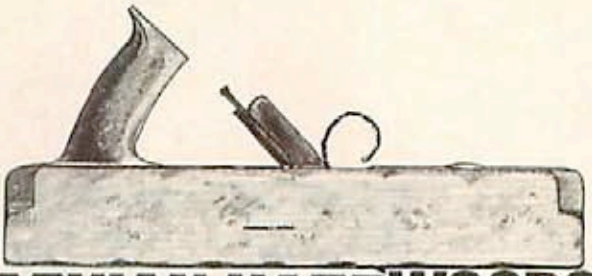
The Woodwriter, available for $62.95 ppd. from Craft Supplies, 1287 E. 1120 S., Provo, UT 84601.

BUILT FOR BIG SANDING JOBS



If you routinely belt-sand wide boards, you'll appreciate a precision surface sander that attaches to your radial arm saw. After the initial adjustment, the 44"-wide sanding unit attaches to the saw in a matter of minutes. We were pleased with the quality of sanding on random boards and a 32"-wide tabletop. You can easily replace strips of 3"-wide sandpaper.

Performax S/T, $315 ppd. from Preformax Speciality Products Co., 17065 Judicial Road, Lakeville, MN 55044.



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THE HOME SOLUTION™: Elmer's Carpenter's Wood Glue. Penetrates wood deeply for a strong bond.

THE MAGAZINE FOR HOME WOODWORKERS
AUGUST WOOD 1988

PADAUK

The wood of kings, railroad trains, and many names

King Solomon, proverbial for his wisdom in governing the Israelites during the 10th century B.C., must have really known his wood, too. He chose stalwart padauk for the pillars of his temple.

French kings Louis XV and Louis XVI were separated from Solomon by thousands of years. Yet, these 17th-century rulers also favored a red-orange padauk they called narra. With it, royal woodworkers crafted kingly cups and chalices. Because water placed in these vessels turned yellow, royalty believed the "potion" had medicinal properties.

A century later, the colorful wood of Solomon and the Louis attracted even wider acclaim. As a veneer named amboyna, padauk was featured in Empire-style furniture.

Far removed from European pomp and furniture fashion of the 1800s, convicts sent to British penal colonies in the Andaman islands off Burma labored to supply the padauk sought by world craftsmen. In fact, Chicago's Pullman Company imported much of this exotically beautiful and durable "Andaman" padauk to panel railroad passenger cars.

Freshly machined African padauk

Sun-darkened padauk

Wood identification

All seven species we recognize as padauk belong to the genus *Pterocarpus*. African padauk (*P. soyauxi*), sometimes referred to as vermillion, is the only padauk species readily available today. Others occasionally sold include: Andaman padauk (*P. dalbergioides*), Angola padauk or muninga, kiaat (*P. angolensis*), Burmese padauk (*P. macrocarpus*), narra (*P. indicus*), and sandalwood padauk (*P. santalinus*).

Padauk grows in tropical climates, although the geography changes from rain forest to dry, nearly treeless plains with each species. You'll find padauk in India, Indochina, the South Pacific, West Africa, and even southern Florida.

Except for squatty African muninga, most padauk trees look like elms, with large, spreading crowns reaching to a height of 120'. Averaging 7' in girth, their slightly irregular, fluted trunks have smooth, yellow-tinted bark. Trunks often have no branches for the first 65'.

The leaves of some padauk species provide protein in human diets as a substitute for green vegetables. All padauks bear distinctive, round, inedible fruit banded by a flat wing that gives them a flying saucerlike appearance. In fact, *pterocarpus* means "winged fruit."

Depending on the species, padauk's coarse-grained heartwood varies in color from a lustrous purple-red to orange-red. With age and exposure to sunlight, it turns deep maroon. Quarter-sawn wood features a pronounced ribbon stripe. Sapwood never reaches market.

Working properties

About as heavy, but stronger than oak, padauk generally works exceptionally well with either hand or power tools. You'll have no trouble gluing padauk, and screws remain secure.

The wood sands easily, but for a glass-smooth finish, we recommend a paste wood filler or sealer to even out its open grain. Clear finishes should contain an ultraviolet inhibitor to reduce padauk's tendency to darken. Sanding dust may stain your hands and clothes, and may even irritate your nose. And, padauk's bright dust can discolor adjacent unfinished stock if it's of a lighter shade.

Uses in woodworking

A first-class furniture and cabinet wood, padauk also makes fine turnings, carvings, and musical instruments. Because it has a high resistance to abrasion, great strength, and doesn't readily decay, it adapts well to cutting board stock. Seaworthy boats have even been made of padauk.

Cost and availability

Due to freight costs, padauk prices run higher inland than on the East, West, and southern coasts. Except for Amboyna burl and vermillion, little padauk becomes veneer.

African padauk costs about the same as top-grade black walnut. Other padauks demand higher prices, as do veneers.

Illustration: Steve Schindler
Photograph: Bob Calmer

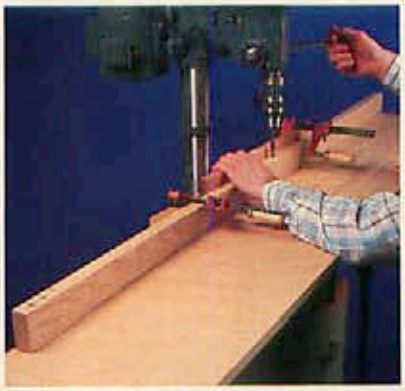
17 WAYS TO TURN SHOP

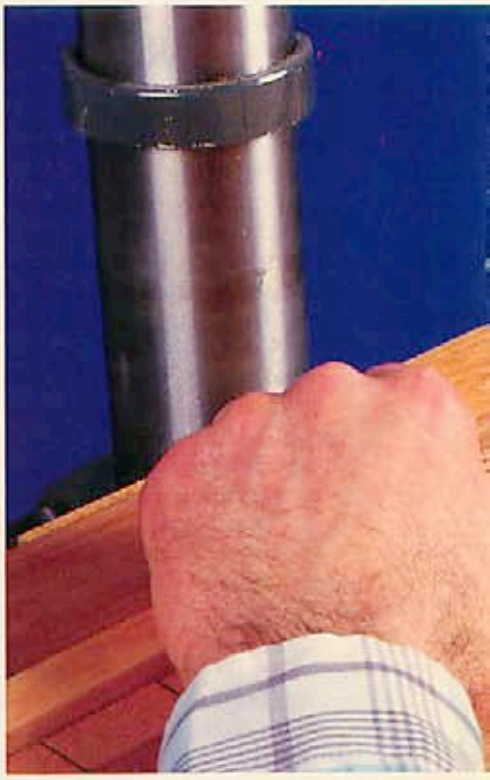
We were curious about how many different jobs a drill press can actually do, so we went to work in our shop exploring its uses. Whether the stock is flat or round, small or long, the drill press can handle it. *WOOD*® magazine Design Editor Jim Downing even came up with some clever jigs (see pages 30-31 and 74-75) to stretch the use of this handy machine even further.

1 WORKING L-O-N-G

Trying to drill accurate holes near the ends of stock with a standard-size drill press table is a lot like balancing on a high wire. It's a tough job! Here's a solution:

We clamped a piece of ¾" plywood to the drill press table. Make the support as long as necessary, and clamp the workpiece to the fence to keep it from shifting.





2 GET THE RIGHT ANGLE EVERY TIME

With our easy-to-make adjustable-angle jig (see design, page 31), you'll never again have to eyeball the angle of cut. To use this jig, just loosen the wing nuts so the fence portion can move freely. Then, use a sliding T-bevel or an adjustable triangle to set the required angle and re-tighten the wing nuts.

YOUR DRILL PRESS INTO A HERO

In our shop, the drill press earns its keep. We turn to it for help with a myriad of shaping, sanding, boring, cleaning, grinding, and polishing chores. You, too, can test the limits of this truly versatile performer.

We'll bet some of you have discovered other interesting uses, or developed innovative jigs, for your drill press, too. How about sharing with the rest of the *WOOD* magazine audience? Just jot down a quick note describing the technique and, if possible, a snapshot or sketch showing how you do it. We'll pay $25 for each entry we publish, and we'll also tell everyone who supplied us with the idea.

Send your entry to:
MY BEST DRILL
PRESS TECHNIQUE
WOOD® Magazine
Locust at 17th
Des Moines, IA 50336

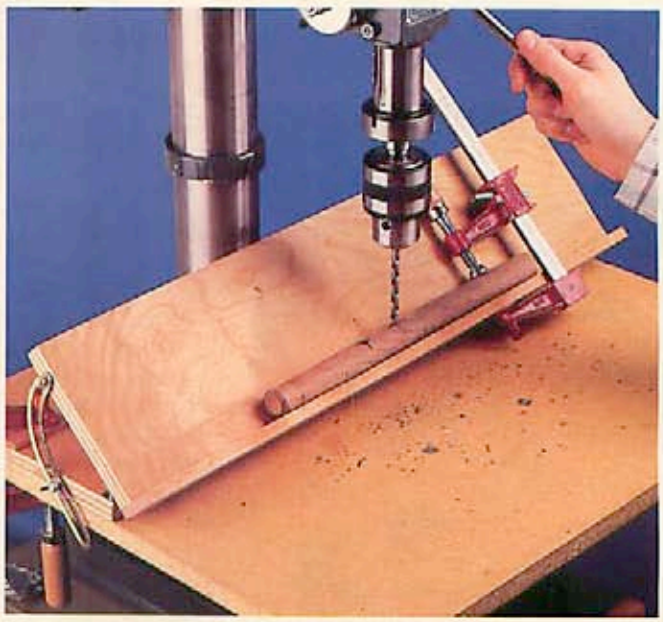
3 SPACE SUCCESSIVE HOLES PERFECTLY

If you've made a cribbage board, cradle, or other project that calls for drilling hole after evenly spaced hole, you'll appreciate this technique.

To drill a succession of evenly spaced holes, use our "high-low" fence (see page 31). Start by marking the hole spacing on the stock. Center the bit on one of the marks, clamp the stock, and fasten the fence alongside the stock.

Now, pencil a reference mark on the fence, unclamp the stock from the table, and slide the stock along the fence, drilling holes where marked.

For greater accuracy, use a brad-point bit rather than a twist drill. The brad point will produce a straighter hole because it won't skew off course with hard and soft grain.



4 DON'T GO 'ROUND GUESSING

You also can use the angle-drilling jig on the previous page to take the guesswork out of drilling round stock, such as a dowel. To be certain you'll drill through the center of the stock, first set the jig at a 45° angle by using a sliding T-bevel as in tip #2. Lower the tip of the bit until it touches the bottom of the jig's V. Clamp the stock to keep it from rolling. Now you're ready to drill the hole. Use a pilot-pointed bit such as a brad-point or Forstner for precise drilling.

Continued

SHOP HERO

5 GETTING A HANDLE ON SMALL STOCK

We've had small parts literally fly out of our hands or break apart during drilling, so anytime you can't get a hand on the stock, just clamp it with a handscrew. You'll increase both your control and margin of safety.

Do you want even more control, more safety? Then secure the clamp to the drill press table.

6 CIRCLE CUTTING THE SAFE WAY

If you've ever had your fingers smacked by a rapidly spinning circle cutter, you'll appreciate this little tactic. Place the stock against the fence and clamp it with a notched hold-down. Before you start cutting, spin the circle cutter by hand to make sure it clears the fence and hold-down.

In the interest of safety, we painted the ends of the circle cutter yellow for clear visibility.

For best results and less overheating, cut until the pilot drill just penetrates the bottom surface of the stock. Then, turn over the workpiece, put the pilot drill in its hole, and finish the cut.

7 HAVE A BALL DRILLING SPHERES

Remember that ball you wanted to attach to a handle on a tool or a favorite toy project? Here's an easy way to put a hole through the center of any sphere.

To start, drill a hole that's somewhat smaller than the ball's diameter into a clamped piece of scrap stock. The secret to this technique is to not change the position of the table or scrap while switching to the desired bit. Place the ball on top of the hole, clamp it, and drill away.

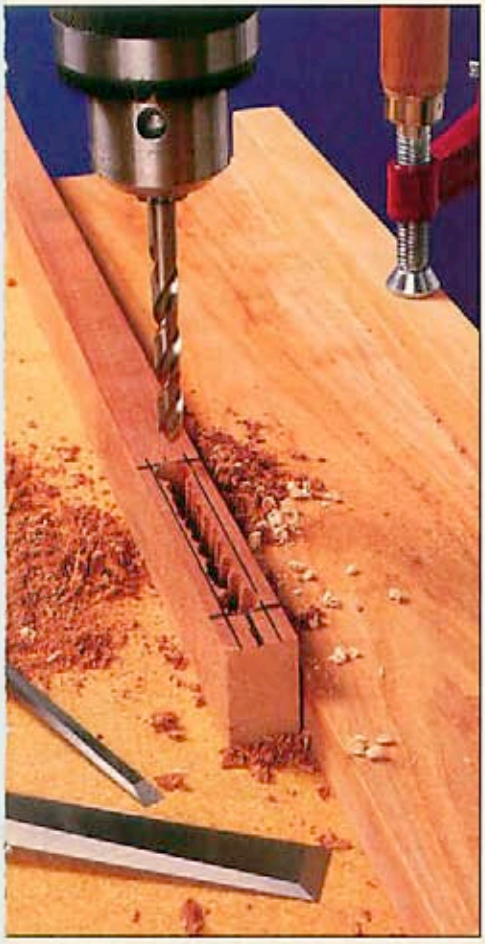
8 DRILL HOLES INTO ENDS OF DOWELS

To drill a hole into the end of a short length of dowel, clamp a scrap piece of wood to the table, and drill a hole in it that's the same diameter as the dowel. Without changing the position of the table or scrap piece, change bits and insert the dowel into the hole. Now grab the dowel with a handscrew to keep it from rotating, and drill the centered hole. This technique also works well for longer dowels. Just swing the drill press table to one side so the dowel clears its edge.

9 MAKE A MIGHTY-FINE MORTISE

Even if you don't have a mortising attachment (see page 60), you can work without one. Lay out the mortise in pencil and center the bit on it. Using a bit the same width of the mortise, drill the end holes first to control the size of the opening.

With a bit ⅛" smaller than the width of the mortise, bore out the remaining wood between the holes. You will have a minimum of 1/16" wood on the inside of the edges—enough for hand chiseling up to the edges.



10 GETTING "IN SHAPE" WAS NEVER EASIER

Here, your drill press works like a mini-lathe. You can make your own work arbor from carriage bolts or lengths of all-thread rod.

By using wood rasps, files, sanding blocks, dowels wrapped in sandpaper, or other abrasives, you can shape many small objects.

This photo shows us shaping a pair of drawer pulls, believe it or not. After smoothing on the work arbor, cut the pulls apart as shown.

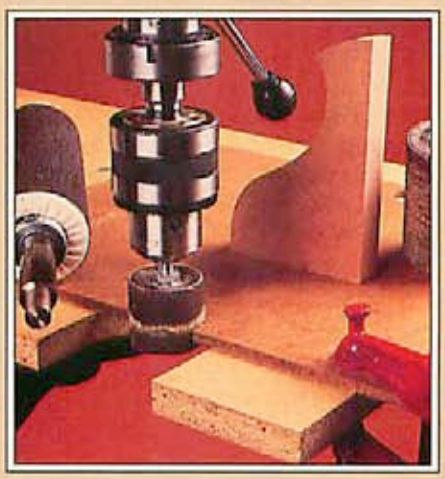
11 HAVE BIG SUCCESS WITH SMALL PARTS

You also can insert one end of the stock directly into the chuck, tightening until the part is firmly held (without crushing the wood). Shape with rasps and successive grades of abrasives.

12 BE A SANDING DISC JOCKEY

You can save your skin by using a jobber stick like the one shown here. Attach the stick to the workpiece with instant glue or hot-melt glue, and then saw the stick off after you've finished the shaping.

Keep in mind that a slow spindle speed—500 to 700 rpm—gives you the best control when shaping delicate work.



13 YOUR DRUM CAN HUM

You just can't top drum-sander attachments for sanding curved edges.

We first cut notches in each side of ¼" hardboard as shown at *left*. The notches corresponded to the sizes of the common drum sanders.

We swung the drill press table off to the side so we could plunge the sander through the cutout in our auxiliary table. With this setup, you'll have less chipping of sanded edges as well as edges that are square to the face of the stock.

Continued

SHOP HERO

14 GOOD-BYE, RUST. HELLO, SHINY TOOL

Question: How do you turn old tools into new ones?

Answer: With a flap sander, make your tools look like they did when you bought them. With a flip of a switch, you're ready to chase away corrosion on all your tools.

15 BE SHARP!

You can quickly sharpen your own jointer/planer blades at home with this handy jig. Now you don't have to take the blades out of your shop and pay someone else to sharpen them, or laboriously do it yourself by hand. (See page 74 for how to build and use this grinding jig).

16 HERE'S A POLISHED PERFORMER

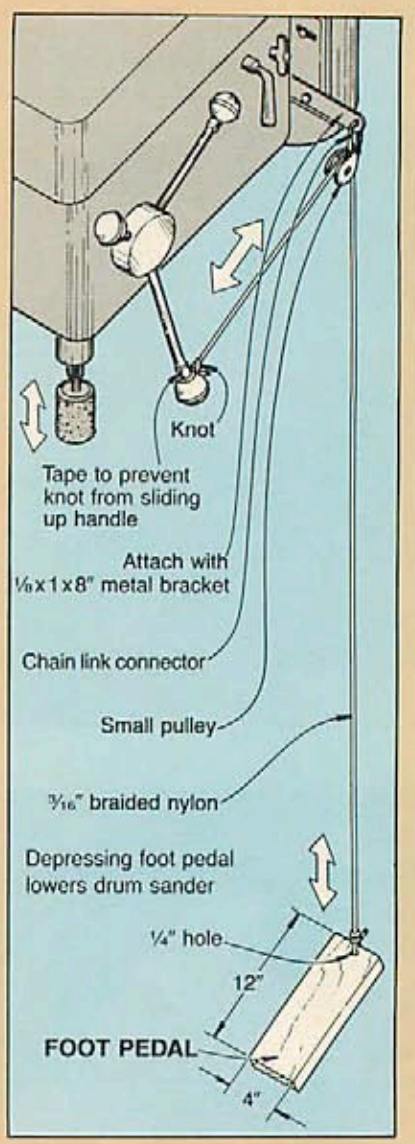
Slap a buffing wheel on your drill press and you're ready to clean and polish neglected hardware such as drawer and cabinet handles. Use the buffing wheel in combination with a metal polishing compound to achieve a lustery finish. For best results, run the buffing wheel between 1,500 and 2,000 rpm.

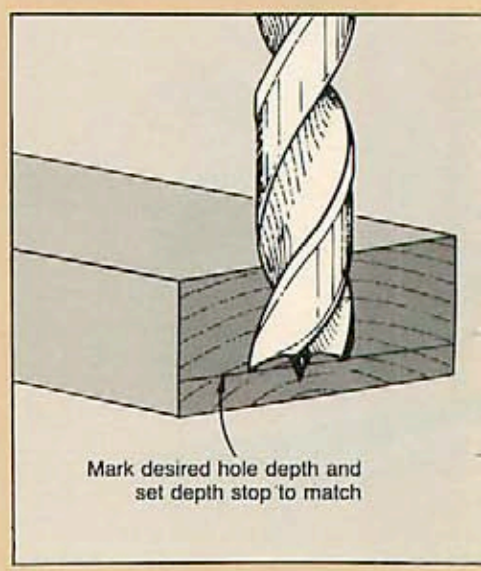
17 DO YOU KNOW ABOUT THIS CLAMP?

When a conventional clamp just doesn't do the job, don't forget your drill press. It may offer an effective solution, especially when you're out of other clamps.

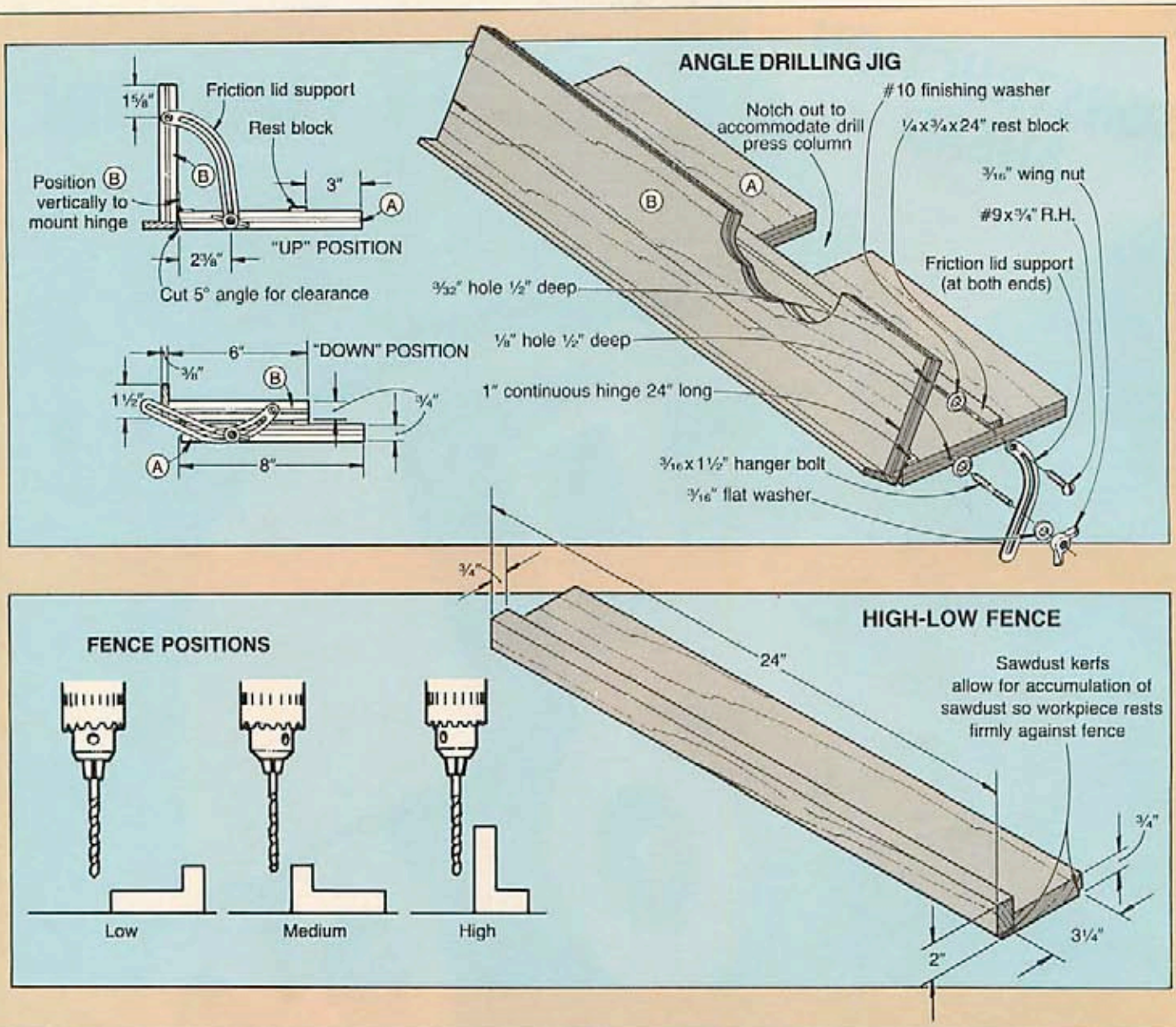
Your drill press will enable you to direct pressure from the center of the glued piece, applying the force evenly. This technique is simple; just position the work to be clamped, lower the quill, and tighten the depth stop.

This works great for a variety of applications, especially when you're preparing stock for the lathe. Here, we've attached an auxiliary faceplate to the clamped piece.





Produced by Bill Krier



FIVE TIPS FOR BETTER AND SAFER DRILL PRESS USE

• DON'T GO OFF THE DEEP END

Achieving exact depth is easy using the handy technique shown at *left*. Mark the hole depth on the end of the stock, and with the switch off, bring the bit down so its tip aligns with the mark. Lock the drill press depth stop at that point, raise the drill, line the bit up with the marked hole, and proceed.

• MAKE YOUR FLUTES PLAY SWEET MUSIC

Don't place your bit so far into a chuck that you cover the flutes (hollow portion). Covering the flutes may dull the cutting edges and inhibit the bit's ability to remove cuttings when drilling deep holes. Raise and lower bits often to clear flutes of debris (not completely clearing top of hole).

• AVOID CHAIN REACTIONS

To keep track of your chuck key, attach it to the side of your drill press with a cord or string. Do not attach it with a chain. If you accidentally turn on the machine with the key inserted, chain links may literally become shrapnel. Always wear adequate face protection when operating a drill press.

• WEAR DOWN SANDING DRUMS EVENLY

If you've done a lot of drum sanding on a drill press, you know how a drum tends to wear in one area until you stop sanding to move the drum. The solution: The handy foot pedal shown at *above, left*. Simply step on the foot pedal to lower the sander. The upward spring-action of the drill press will slowly raise the drum sander as you work.

• DON'T LOSE YOUR TEMPER!

Like people, drill bits lose their temper (hard cutting edge) when caught speeding.

Keep your bits sharp by remembering these points:

- Run larger drill bits slower than smaller bits.
- Drill slower in hardwoods than you would in softwoods.
- Your bit is too hot if water sizzles on its surface. Use water to cool it down.

To help you keep your bits from speeding, *WOOD*® magazine's experts have developed a drill press speed chart.

As a reader service, we'll send you this invaluable chart for only $1 (to cover printing and postage). See the Editor's Angle on page 6 for more information. Then post the chart near your drill press.

Technical Consultant: Jim Boelling Jig Designs: James R. Downing Illustrations: Mike Henry, Bill Zaun Photographs: Jim Kascoutas, Bob Calmer

CONSTRUCTION AHEAD

HEAVY HAULIN'

The construction business has never been better. The roaring success of our Fat Cat Bulldozer in the December 1987 issue of *WOOD*® magazine sent Design Editor Jim Downing scurrying to the drawing board to create more road-building pieces. Now we have a fleet!

Build two identical tractors, add a box to one for the dump truck and a lowboy to the other, and watch as your youngster's imagination moves mountains.

Note: The instructions and the parts listed in the Bill of Materials are for one tractor. Cut twice as many parts if you want to build two tractors.

START WITH THE TRACTOR

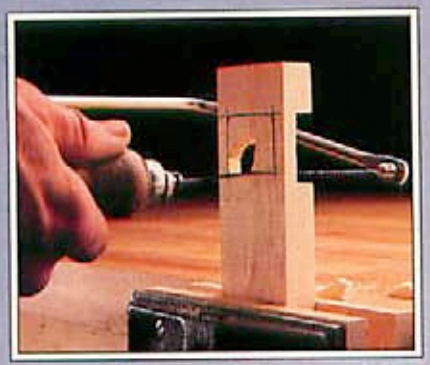
1 Cut a piece of ¾" pine to 2" wide by 12" long for the cab parts (A).

2 Measuring 1" from each end of the pine, mark the location for a 1⅛" dado ½" deep. Cut the marked dadoes as shown on the drawing on the *opposite page.*

3 Next, crosscut the pine piece into two equal lengths. Mark the windshield location on one of the pieces. (The pine piece is still extra

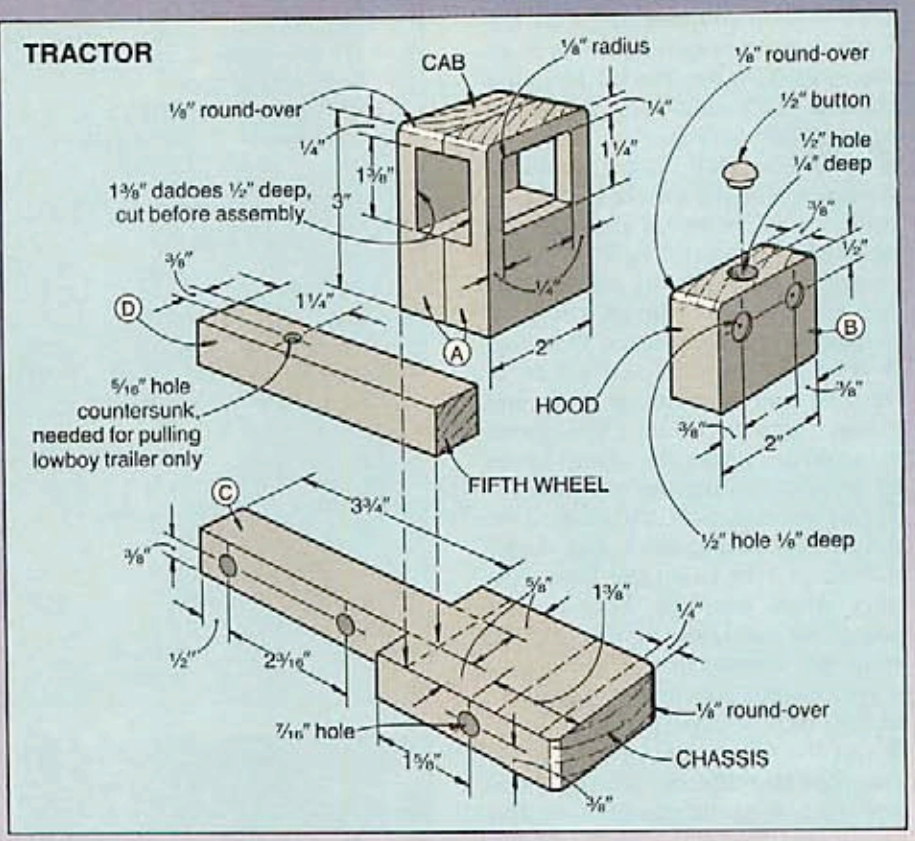
LOWBOY AND DUMP TRUCK

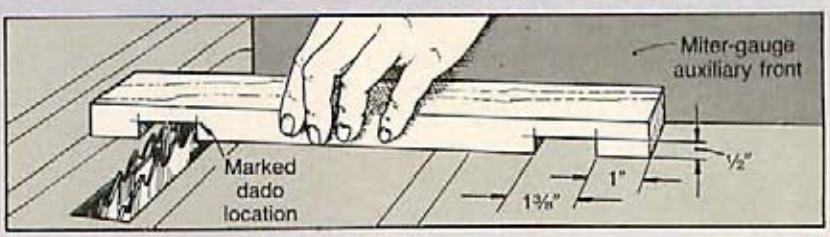
long, so mark the top of the windshield flush with the top of the dado where shown on the photo *below*. See the Tractor Drawing for size of the window opening). Drill a blade start hole in the center of the windshield, and cut the opening to shape with a coping saw as shown in the photo. Sand or file the windshield edges smooth.

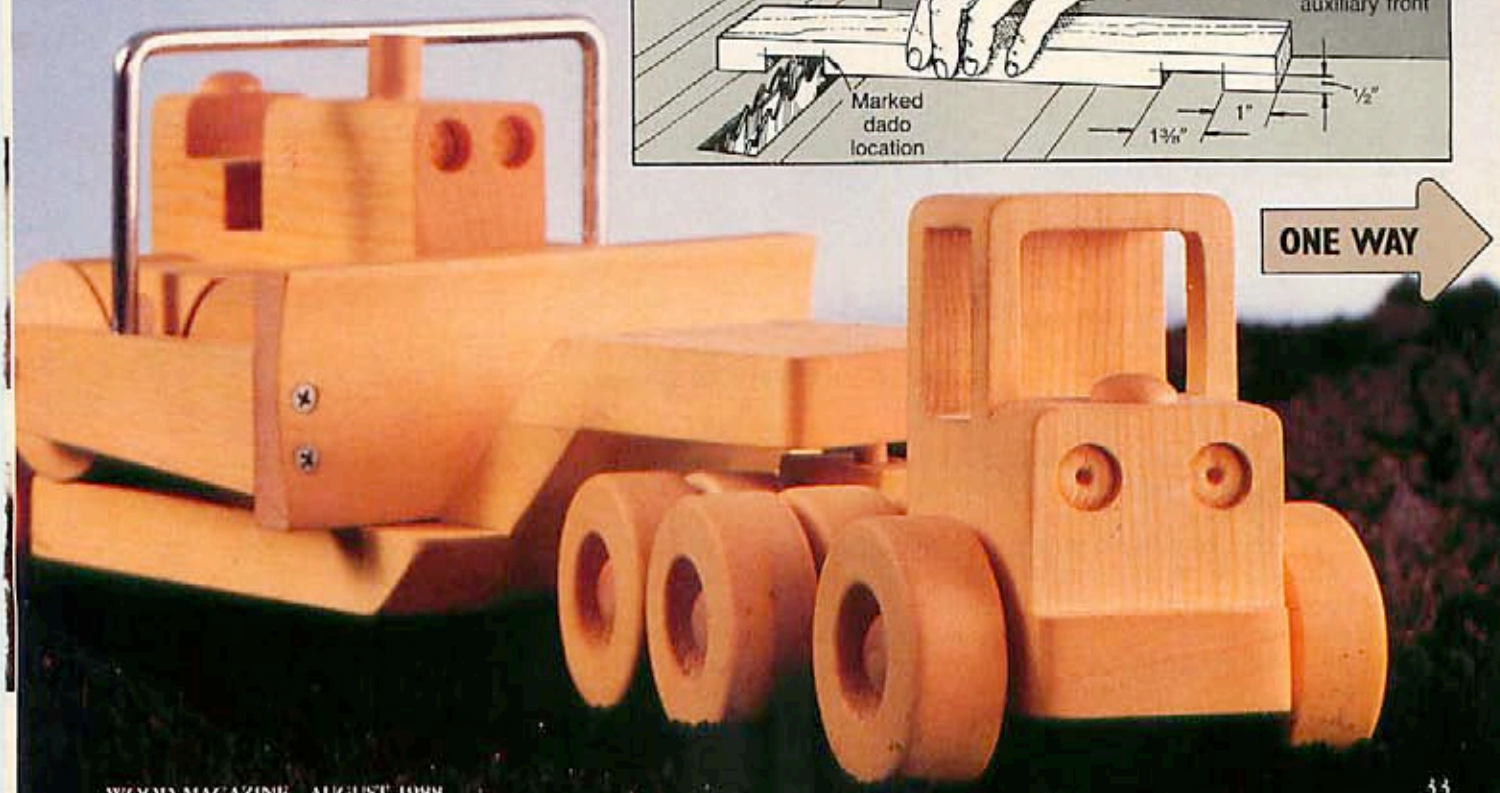


Mark the windshield location, drill a blade start hole, and cut the windshield opening to shape.

4 Apply glue to the mating surfaces, align the dadoes, and clamp the cab parts (A) together face to face. Later, use a sharp chisel to







remove all the excess glue, including that inside the cab opening. Trim the top and bottom of the cab lamination to length (3") where dimensioned on the Tractor Drawing. Sand a ⅛" round-over along the sides of the cab top.

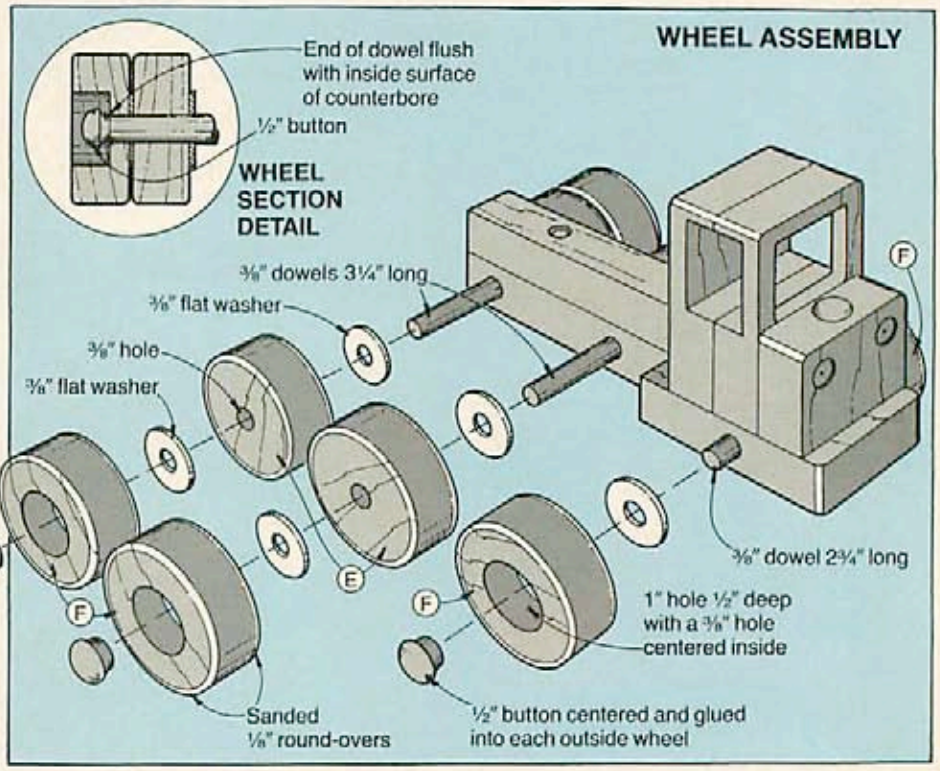
5 Cut the hood (B) to size. Sand a ⅛" round-over on the top corners. Then, drill two ½" holes ⅛" deep for the headlights and a ½" hole ¼" deep centered from side to side for the radiator cap in the hood where dimensioned on the Tractor Drawing.

6 With the bottom and edges of the cab and hood flush, glue and clamp them together. (We placed scrap pieces under the clamp heads to prevent denting the soft pine.)

7 Cut the chassis (C) to shape (we did this on a band saw), and sand a ⅛" round-over along the front corners. Mark the axle hole center points on one side of the chassis. Hold the chassis firmly in a handscrew clamp, and use a drill press to drill the 7/16" axle holes.

8 Cut the fifth wheel (D) to size. If you plan to build the lowboy later and hitch it to the tractor, drill and countersink a 5/16" hole where shown on the Tractor Drawing.

9 Leaving a ¼" gap at the front to form the bumper, glue and clamp the cab assembly to the chassis. Later, glue and clamp the fifth wheel on top of the chassis and against the back of the cab. Sand smooth, and glue a ½" button into the radiator cap hole.

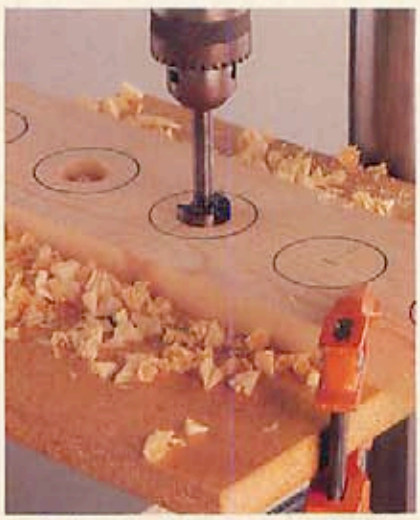


FORMING THE DUALS

***Note:** You'll need four inside wheels (E) and six outside wheels (F) for each tractor. In addition, if you make the lowboy, make four inside and four outside wheels.*

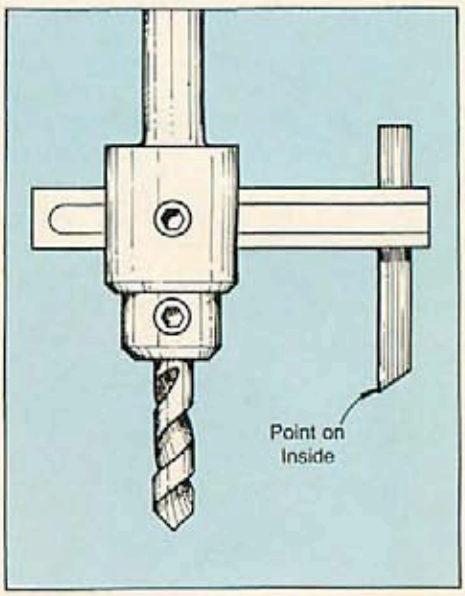
1 To make enough wheels for one tractor, cut a ¼"-thick piece of pine to 4" wide by 33" long. Use a piece ¾x4x27" for the lowboy. Starting 3" from either end, mark center points 3" apart down the center of each pine board.

2 With a compass, mark a 2"-diameter circle (1" radius) at each marked center point.

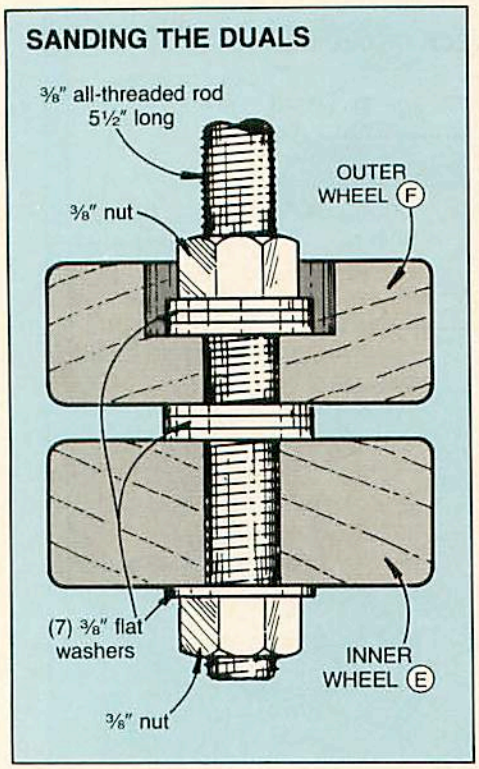


Mark the wheel center point locations on the pine, and drill holes ½" deep for each outside wheel.

3 Chuck a 1" Forstner bit into your drill press. Attach a scrap work surface to your drill press table. As shown in the photo *above*, center the bit over a marked center point, and bore a ½" deep hole for each outside wheel (6 outside wheels on the tractor and 4 on the lowboy). We used the stop on our drill press to ensure uniform hole depths.



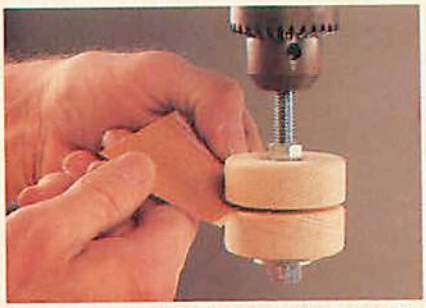
4 Chuck a circle cutter to your drill press. Turn the cutter blade to cut a perfect wheel where shown on the drawing *above*. Raise the cutter blade ⅝" higher than the bottom of the pilot bit. Center the pilot bit over the centered depression in each 1" hole, and slowly cut the wheels to shape as shown in the photo *above right*.



Center the circle-cutter pilot bit over the Forstner-bit depression, and cut the wheels to shape.

5 Center the circle-cutter pilot bit over the remaining marked center points, and cut the four inside wheels to shape.

6 Remove the circle cutter, and chuck a ⅜" twist drill bit into your drill press. Using a handscrew clamp to secure the wheels, enlarge the ¼" axle hole in the center of each wheel to ⅜".



Fasten two wheels at a time to the threaded rod, and sand the wheels smooth. Start with 80-grit sandpaper.

Bill of Materials

Part	Finished Size* T	W	L	Material	Qty.
ONE TRACTOR					
A*	¾"	2"	3"	pine	2
B	¾"	2"	1½"	pine	1
C	¾"	2"	6¾"	pine	1
D	¾"	¾"	4½"	pine	1
WHEELS FOR ONE TRACTOR					
E	¾"	2" diam.		pine	4
F	¾"	2" diam.		pine	6
DUMP TRUCK BOX					
G	¼"	2¾"	4"	pine	1
H	¼"	2½"	2¾"	pine	1
I	¼"	2¾"	4"	pine	2
J	¼"	¾"	3¼"	pine	1
LOWBOY TRAILER					
K*	¾"	4¼"	11"	pine	1
L*	¾"	2½"	2"	pine	1
M*	¾"	2½"	3¾"	pine	1
N	¾"	¾"	4½"	pine	1

*Parts marked with an * are cut larger initially, and then trimmed to finished size. Please read the instructions before cutting.

Supplies: ½" wood buttons, ⅜" flat washers, ⅜" dowel rod, ¼" dowel rod, ⅜x5½" all-thread rod and nuts for work arbor, polyurethane.

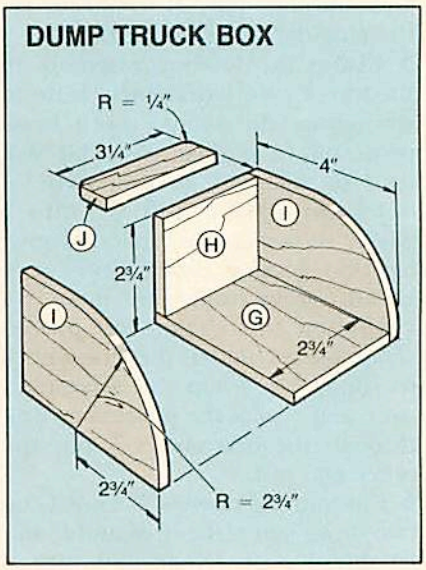
7 Cut a piece of ⅜" all-thread rod to 5½" long, and chuck it into your drill press. Attach two wheels at a time to the work arbor where shown on Sanding The Duals Drawing. Starting with 80-grit sandpaper and proceeding through finer grits, sand the wheels smooth. Sand a slight round-over on each wheel as shown in the photo *above*.

KIDS WORKIN

HERE'S HOW TO BUILD THE DUMP-TRUCK BOX

Note: *You'll need ¼" stock to build the box. We resawed 2x4 pine stock on the band saw to 5/16" thick, and then sanded it to ¼" thick.*

1 Cut the box bottom (G) and front (H) to size. Now, cut the sides (I) and cab overhang (J) to a rectangular size, mark the radii, and cut the pieces to shape.



2 Glue and clamp the box bottom and front between the two side pieces, making sure all the edges are flush. Scrape off the excess glue. Later, sand the box smooth, and glue and clamp the cab overhang to the front of the box.

3 Glue and clamp the box to the tractor, flush with the *back* end of the chassis.

DETOUR

LOWBOY AND DUMP TRUCK

NOW, LET'S CONSTRUCT THE LOWBOY TRAILER

1 Cut a piece of ¾" pine to 4¼" wide by 12" long for the bed (K). Miter-cut the front end of the bed for an 11" finished length. Lay out and cut the notches for the rear duals where dimensioned on the Lowboy Trailer Drawing at *right*.

2 Mark the axle hole center, and drill the 7/16" axle holes.

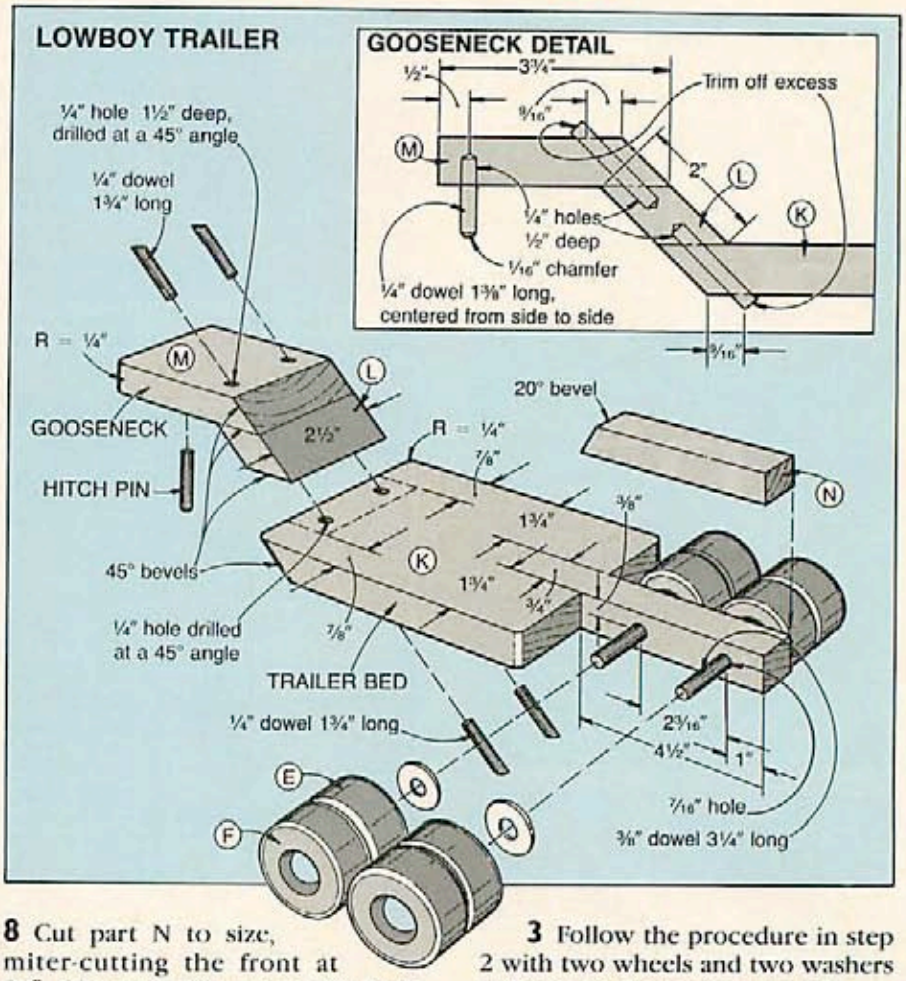
3 Cut a piece of ¾" pine to 2½" wide by 12" long for the gooseneck parts (L, M). With the saw blade 45° from vertical, cut part L to length. From the remaining pine stock, measure 3¾" from the square end, and miter-cut gooseneck part M to the length shown on the Gooseneck Detail.

4 Using the dimensions on the Lowboy Drawing, glue gooseneck part L to the front end of the bed (K). (We used masking tape to hold part L in position on the bed.) After the glue dries, remove the tape, and glue and tape part M to part L. Let the glue dry and remove the tape.

5 Clamp the lowboy assembly to the top of your workbench. Now, to strengthen the joints, use a brad-point bit (a regular twist bit will tend to wander), to drill two ¼" holes through M and ½" into L where shown on the Lowboy Drawing and accompanying Gooseneck Detail. (When drilling the holes, we eyeballed the angle, and placed scrap pieces under the gooseneck to support it.) Flip the assemblies over, and repeat the process to drill through the bed and ½" into the other end of L.

6 Cut four ¼" dowels 2" long. Glue two dowels in place in M and L, and let the glue dry. Next, glue two in place in K and L. After the glue dries, trim and sand the ends flush with the bottom of the bed and the top of the gooseneck.

7 Drill a ¼" hole ½" deep centered from side to side in the bottom of gooseneck part M where shown on the Gooseneck Detail. Cut a ¼" dowel 1⅜" long, and sand a chamfer on one end of it. With the chamfered end protruding, glue the dowel into the hole.



8 Cut part N to size, miter-cutting the front at 20°. Glue and clamp it to the back of the bed (K) with the back of N flush with the back end of the bed.

ATTACH THE DUALS AND APPLY THE FINISH

1 Cut the tractor and lowboy axles to length from ⅜" dowel stock as dimensioned on the drawings.

2 Glue one outer wheel onto each dowel axle so that the end of the dowel is flush with the inside of the counterbore where shown on the Wheel Section Detail accompanying the Wheel Assembly Drawing. After the glue dries, slide a ⅜" flat washer next to the outer tire and an inner tire next to the flat washer. Don't glue the inner tire to the dowel. Slide the axle assembly through the axle hole, and then add a washer, inner tire, and another washer. Glue the outer wheel to the end of the axle dowel, leaving enough free play so the tires turn easily.

3 Follow the procedure in step 2 with two wheels and two washers to form the front-axle assembly.

4 To add the hub caps, set the tractor and lowboy assemblies on their side. Place a dab of glue on the ends of the axle dowels, and glue a ½" wood button to the end of the dowel. After the glue dries, flip the assemblies over and repeat for the other hub caps.

5 Apply the finish (we used Varathane Professional Clear Finish, an aerosol polyurethane).

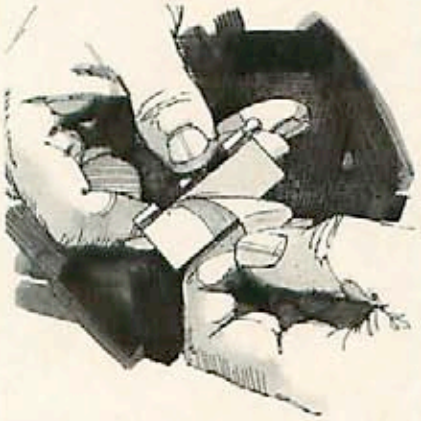
Note: If you don't have the issue with the Fat Cat Bulldozer, send us a self-addressed, stamped no. 10 business envelope to: Fat Cat Bulldozer, *WOOD* Magazine, Locust at 17th, Des Moines, IA 50336. We'll send you a free photocopy of the how-to article. Offer expires March 1, 1989.

Produced by Marlen Kemmet
Project Design: James R. Downing
Photographs: Bob Calmer
Illustrations: Kim Downing, Bill Zaun

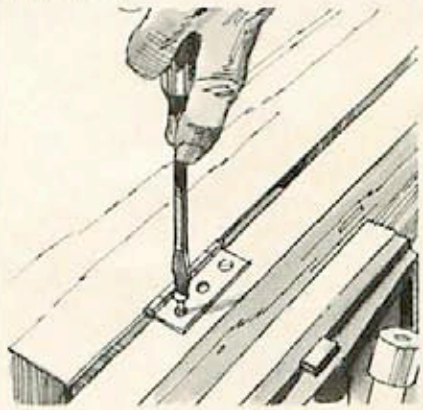
THE PERFECT HINGE MORTISE

Hand-cutting mortises (gains) for hinges can be tedious work, especially if your project has lots of doors. Worse yet, one little slip and you end up with an ill-fitting hinge. Here's how to speed things along — and end up with a perfect fit every time.

1 Separate the hinge leaves (if possible) and cut a piece of double-faced tape for each. The tape helps you accurately position the leaf, and holds it securely in place for step 2.



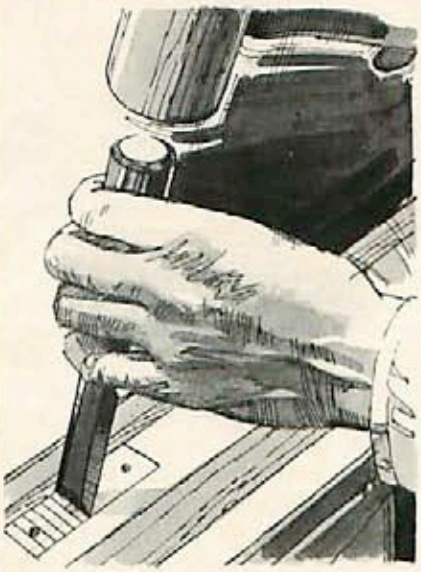
2 Tape the hinge leaf in position, drill pilot holes, and screw the leaf to the surface. This way, the leaf won't slip when you mark the hinge mortise and drill the pilot holes. To avoid damaging the heads of finish screws, use surplus screws of the same size.



3 Carefully score end and side cuts with a sharp knife. Scoring gives you more precise lines than you'll get with a pencil. It also helps ensure that your initial cuts won't split the wood fibers along the grain.

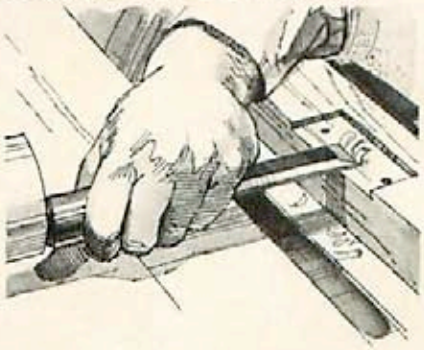
4 Back out the screws and remove the leaf. Mark the mortise's depth. Holding your chisel perfectly vertical with its bevel facing the inside of the mortise, make stop cuts at the ends and side. Easy does it. Don't try to cut to the full depth in one operation, lest you score too deeply and overshoot your mark.

Next make a series of crosswise depth cuts along the length of the mortise — the more cuts, the better.



5 Holding the chisel at a low angle to the wood, bevel side down, clean out the hinge mortise. Work from the center toward the ends. After you've made these lifting cuts, check the depth of the leaf in the mortise. Repeat steps 4 and 5 until the leaf lies about 1/32" above the surrounding surface.

6 Holding the chisel bevel side up, make light, flat paring cuts across the width of the mortise to achieve a perfectly smooth, flat bottom. When you're done, the leaf face should be perfectly flush with the surface.



Illustrations: Jim Stevenson

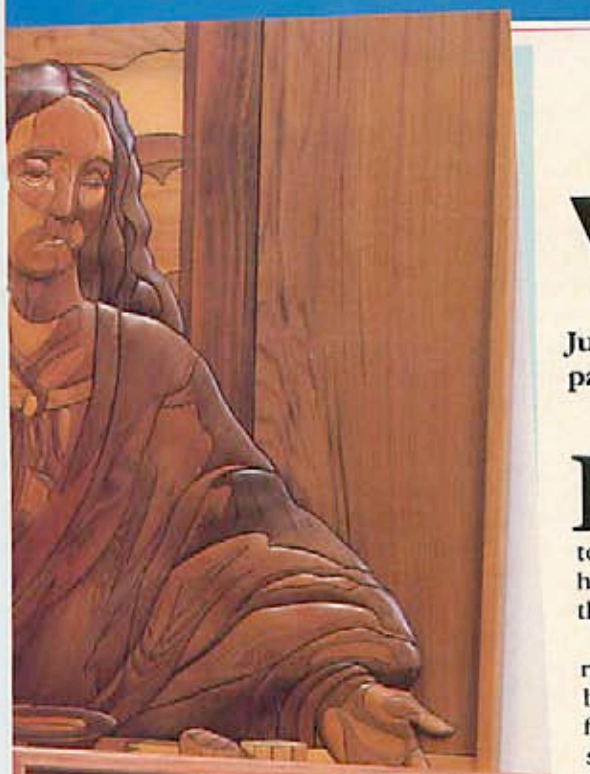
"I always wanted to work with wood," explains Judy Gale Roberts, above. *"But, in high school in Houston the principal wouldn't let me take shop class. 'Boys can't take homemaking and girls can't take shop!,' I was told."*

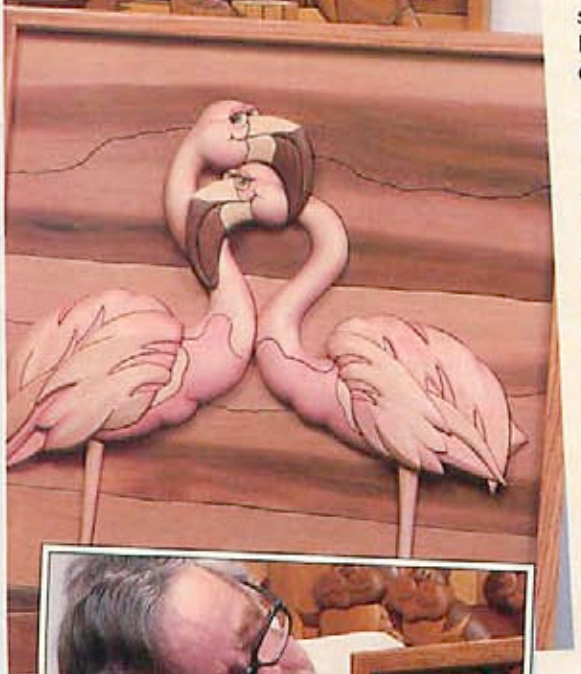
School rules didn't discourage her, though. Fortunately for Judy, her father Pat, is an artist. She tagged along in his studio while he worked on clay sculpting, relief carving, and painting. Hands-on experience with her father's work also nurtured her creativity.

Following high school, Judy enrolled in Houston's Museum of Fine Arts. It proved disappointing. She already knew the first-year basics. "I decided hands-on learning was preferable, and started working with Dad," she says.

We first spotted Judy's spectacular work among the selections readers send in for "Project Showcase." In Lufkin, Texas, we got a much closer look while Judy shared her skills with us.

Judy's creativity was nurtured by her ▶ artist father, Pat Roberts.





SHE PAINTS WITH WOOD

Judy Gale Roberts crafts spectacular wood mosaics from a palette of surprising color and beautiful grain.

Lufkin, Texas never made it as a cowtown. Oil wells failed to gain a foothold there, too. Logging trucks, rather than hooves or drilling rigs, made all the thunder on main street.

Today, southern pine lumber remains big industry, but trucks bypass the business district. In fact, about the only unfinished stock you'll see downtown belongs to woodworking artist Judy Gale Roberts.

Her studio/gallery on East Lufkin Avenue fills a once-vacant storefront—the result of a state-assisted program to revive Texas' small-town downtowns. In exchange for low-rent space, Judy and a couple other notable artists serve as a tourist draw. Despite the high-quality attraction, Lufkin hasn't seen a boom. There's still plenty of parking space within footsteps of the newly occupied shops and galleries. Occasionally, though, visitors peer through gallery windows. At the studio of Judy Gale Roberts, they discover wood more spectacular than the potential of any seen on local logging trucks.

"WHAT WOOD IS THAT?"

No one refrains from a question when they first glimpse Judy's work: "How many different kinds of wood are in this picture?"
"Did you carve these?"
"Isn't this marquetry?"
"What sort of stains do you use?"

Even those claiming decades of woodworking experience aren't without comment. "They look at my pieces and say 'This is walnut here. That's maple there,'" she says. "They really find it difficult to tell what wood it is." The petite artist giggles thinking of the illusions she creates.

With a frank, it-was-beyond-me smile, Judy admits that she only recently discovered the name for her form of wood mosaics. "In 15th-century Italy," she recites, "the inlaying of contrasting woods to form pictures was called *intarsia*."

She doesn't have any stock secrets, either. Judy relies on western red cedar, the same stalwart wood the nation looks to for siding, shingles, and outdoor projects such as decks and planters. "I've experimented with other woods, but keep going back to red cedar," she says. "I never get bored with it. For my purposes, no other wood can match red cedar for varying color and grain."

There's another bonus in Judy's preference for western red cedar—one for the buyer. "This wood doesn't deteriorate," she explains. "So, 100 years from now someone could sand and refinish one of my pieces and the wood will look as warm and colorful as it does today."

DEVELOPING FEELING, PIECE BY PIECE

Of course, Judy owes much of the know-how she uses today to her father, as well as her sense of color and design. In fact, Judy shared in the toil of a business her father once owned called "Custom Art." The two artists exclusively catered to architects and designers who needed artwork to complement building interiors.

About those days, Judy recalls, "We worked in all different types of mediums. The first thing we did in

Continued

wood were some huge flowers about 20′ high for the atrium of a bank. Next came a large wall mural for the restaurant at the airport Quality Inn. Then, we did a 14x20′ mural for Dow Chemical."

Pat created the designs, but he also helped Judy cut and shape the wood. "What we did then was rougher than what I do now, and it lacked the great variety of color," she says.

Four years ago, when Houston's galloping economy slowed to a walk, Judy and her fiancé, Jerry Booher, decided to move where the art market might be better, and gave Florida a try for a few years. Although back in Texas now, Judy doesn't regret the departure. "Despite leaving Dad behind, the move proved really good for me," Judy says, "because design became my total responsibility."

Judy mastered the basics of fitting mosaics by enlarging her father's small drawings. But Jerry, an experienced machinist, taught her why some designs won't work because the pieces can't be cut on the band saw. Judy began to think of designs in relation to tools, and simplified them. And, she learned the necessity of keeping her work within a price range that sells.

Bombarded with new design ideas, Judy began to portray Florida's abundance of fish, flowers, and wildlife in wood. She pored through books to find out more about what she saw. "I try to read as much as I can on the subject so I can put life and feeling into the figure," she explains. "Who would want one of my porpoises or pelicans if they looked like stuffed, lifeless specimens?"

WOOD WORK TO FALL IN LOVE WITH

At first, Judy worried that the public might not accept her designs. She needn't have.

At a Florida art fair, a lady purchased a piece featuring a cartoon-like mother cat and her kittens that Judy titled "Kitty Litter." "The woman was so fond of that picture that when she finally could hold it in her arms, she began to cry," Judy remembers. "And, after she left, I found myself standing there wiping tears from my eyes, too. I guess I get attached to a piece after spending so much time on it. That's especially true of large pieces. They take up so much space on the workshop wall that when they sell I can't get used to the void. It's devastating."

Devastating, maybe. But at times thrilling, too. When famed underwater explorer Jacques Cousteau paid a visit to St. Augustine to overhaul his ship, Judy greeted him with a wood mosaic of the *Calypso*. "I was so excited, I could hardly speak a word," she says of the time she presented the gift to the seafaring celebrity.

People even give names to pieces they buy from Judy. Grinning, she starts a story. "I made a clown picture for a man in Ohio. After I sent it to him he wrote: 'Oliver arrived just fine.' The man had hung 'Oliver' in a special place and talked about him as if he were a person. That always makes me feel good. Selling directly to the public might be more of a gamble, but it's satisfying." At prices that approach $500 per square foot for intricate, custom-designed murals, and as much as $1,500 for the 24x42" "Family Portrait," shown *below*, direct sales also put food on the table.

COLLECTING BOARDS FOR THE PALETTE

Painters draw their hues from tubes of artist's acrylics or oils. Perky Judy selects her palette board by board at the local lumberyard.

"When we go to a lumberyard, I'm like the proverbial kid in a candy store," she beams. "Each piece of red cedar is a new discovery. That's why I have to sort through the boards. If a yardman bugs me about it, I show him my brochure so he can see what I do."

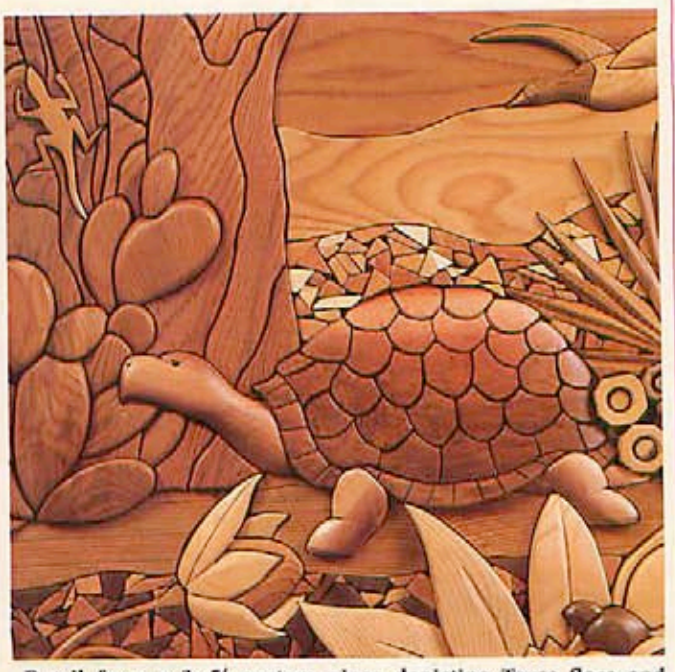
Judy never sees just wood. To her, darkly streaked, figured areas become threatening sky or storm-lashed water.

What she sees and buys becomes part of a mental inventory of images. "I never forget the boards I have; I just keep them in the back of my mind. When I draw a design, I know which boards I'll use in it," explains Judy. "Or, I may design a piece around some spectacular figure or color in a particular board."

Judy and Jerry buy 1x12" and 2x12" nominal, utility-grade western red cedar, even with lots of knots, because that grade offers the greatest contrasts. Most of their lumber comes surfaced one side only, so Jerry runs it all through the planer, a process that Judy views as a further revelation of hidden treasures in color and grain. He rips the wide stock for easier handling.

A fondness for animals and a whimsical imagination result in pieces just made for cat lovers. Judy's "Family Portrait" has all eyes focused on the clan's rascal.

Judy's skill in selecting red cedar colors and grains for a piece such as "Pelican" makes stain manufacturers wince.



Detail from a 3x5' custom piece depicting Texas flora and fauna illustrates the multitude of pieces Judy employs.

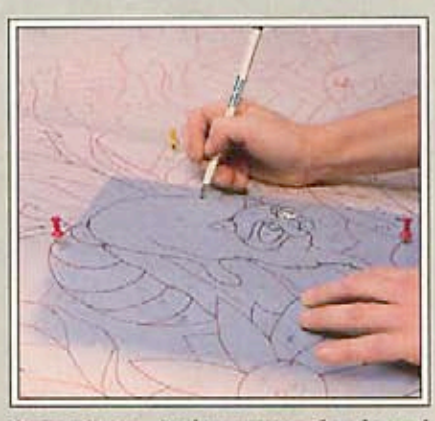
FILLING A FRAME WITH WOOD—AN INTARSIA PICTURE STORY

When she began her intarsia techniques, Judy's last step would be to frame the assembled pieces. Now, she *begins with the frame.* "It's a lot easier to adjust the pieces of the design to fit. Filling the frame first gives Jerry and me the chance to stand the work up before shaping, then step back and view it. Sometimes, we make a change," she notes. "When you don't have a frame to assemble the pieces in, you can't see the whole picture from a distance unless you glue all the pieces down."

In their creative timetable, the first "standup" comes at about one-third of the way through the process. "If the piece took one day of cutting and fitting," Jerry says, "it's going to take two days of shaping and finishing. Remember, each piece has to be touched a lot more than once."

So where does it all begin? Follow Judy through the steps of her technique, then try your hand at crafting a design she's created specially for you on page 42.

STEP 1. Select the grain and wood color to match your design. After Judy draws the full-size pattern from her smaller sketch, she begins searching through her cedar boards. The medium-weight, transparent drafting paper on which she draws her pattern telegraphs wood color and grain to her exploring eyes as she moves it over the board, photo *below.* When she finds a perfect match for one piece or area of the pattern, she sets the pattern on the board, slides carbon paper under the pattern, and traces the appropriate outline on the wood, *below.* After assigning that piece a number and marking it on the wood, she moves on to other sections until she transfers and numbers all the pattern pieces. In the process, Judy varies color, figure, and board thickness (normally from ¼" to 3¾").

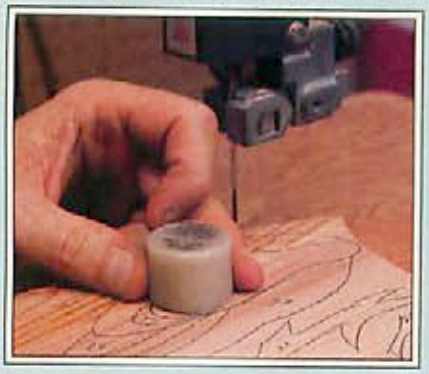


Sometimes, Judy moves the board around under the pattern, scanning it for the specific color or grain pattern.

With carbon paper, Judy traces a piece in the design onto the red cedar board and assigns it a number.

Continued

Jerry's shop-made gauge tells him which size saw blade to use for cutting out the pieces. Tight cuts require the ⅛" blade.



As the cutout pieces come from the band saw, Judy assembles them on the framed backing of ¼" lauan plywood.

Judy leaves a 1/16" space between pieces to give the design depth. Here, she determines how to shape the tail.

STEP 2. Cut out the pieces for your picture. In the shop, Jerry does most of the bandsawing, but Judy often helps out. Two Sears 12" band saws, one fitted with a ⅛" blade, the other with a ¼" blade, provide the ability to make a full range of cuts without changing blades. The "go-no-go" gauge, *above left*, Jerry made from polyester resin poured into a spray can cap, duplicates the minimum, ¾" turning radius of a ¼" blade. It shows him which pieces require the tighter turning radius of the ⅛" blade.

STEP 3. Fill in the frame. As Jerry band-saws the numbered pieces from the cedar stock, Judy assembles them—jigsaw puzzle fashion—onto the framed backing of ¼" lauan plywood, *above center*. To give the mosaic more depth and definition, Judy spaces the pieces about 1/16" apart, *above right*. At this point, Judy sees her choices of color and grain beginning to work together. She also visualizes how to sand to shape the pieces that will give her work a three-dimensional quality.

STEP 4. Shape the wood. A few years ago, Judy shaped pieces with any tool that removed wood, including files and rasps. Today, she works with sophisticated equipment, such as a quartet of inflatable drum sanders in 8",4",3", and 2" diameters, and a stationary disk and belt sander. Red cedar sands easily, even with the crudest of tools, but when a 2x4' mosaic contains 1,000 pieces, machinery helps.

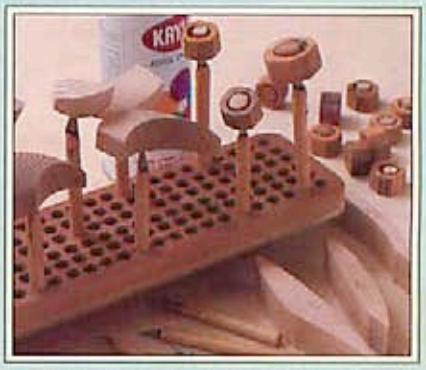
Often, shaping means little more than rounding edges. Flower petals, trees, and bird and animal bodies, however, receive nearly a complete contouring under the bite of 80-grit sandpaper, *below left*. Swipes with 120-grit paper smooth the surfaces.

STEP 5. Spray on a finish, then smooth some more. Jerry takes over the finishing after Judy shapes the pieces. He sprays all except the backs of each piece with as many as three heavy coats of Krylon-brand clear acrylic. The red cedar soaks it up like a sponge. To get at the sides of even the tiniest pieces, Jerry impales the pieces on dowels fitted with old X-acto blades, *below right*. After the pieces dry, Jerry sands them with 0000 steel wool before the final coat. Some custom work receives up to five coats of finish.

STEP 6. Reassemble the pieces for the glue-down. To fasten the finished red cedar to the backing of the frame, Judy has always relied on yellow woodworker's glue. However, she first dry-assembles the pieces to make certain that each one functions in the design as she planned it.

At the inflatable drum sander, Judy sands a section of tree trunk to a gentle roundness with 80-grit sandpaper.

Not all pieces must be shaped, according to Judy. But, the raccoon's tail must look as if it curls behind the tree trunk.



Holders made from dowels and X-acto blades make it possible for Jerry to spray even tiny pieces on all sides.

TRY YOUR SKILL AT INTARSIA

HERE'S A PATTERN FOR YOU DIRECT FROM JUDY GALE ROBERTS!

When we asked Judy the title for the owl wall plaque shown here, she hesitated a minute trying for something clever, then exclaimed "Oh Hoot!" That's pure Texas!

Judy suggests that you don't need a band saw to cut these pattern pieces. A jigsaw or coping saw will do just fine. And, you can even make it less intricate by cutting each leaf as one piece rather than two as shown. "Then, all you need do is carve the lines on them," she notes. The shaping (by sanding or with a rasp) doesn't have to be elaborate either.

Regarding finishing, she advises, "I like my pieces to be really smooth to the touch, and therefore do lots of sanding. But this plaque could look equally nice with some roughness and texture, especially on the tree."

To make the owl plaque, you'll need:

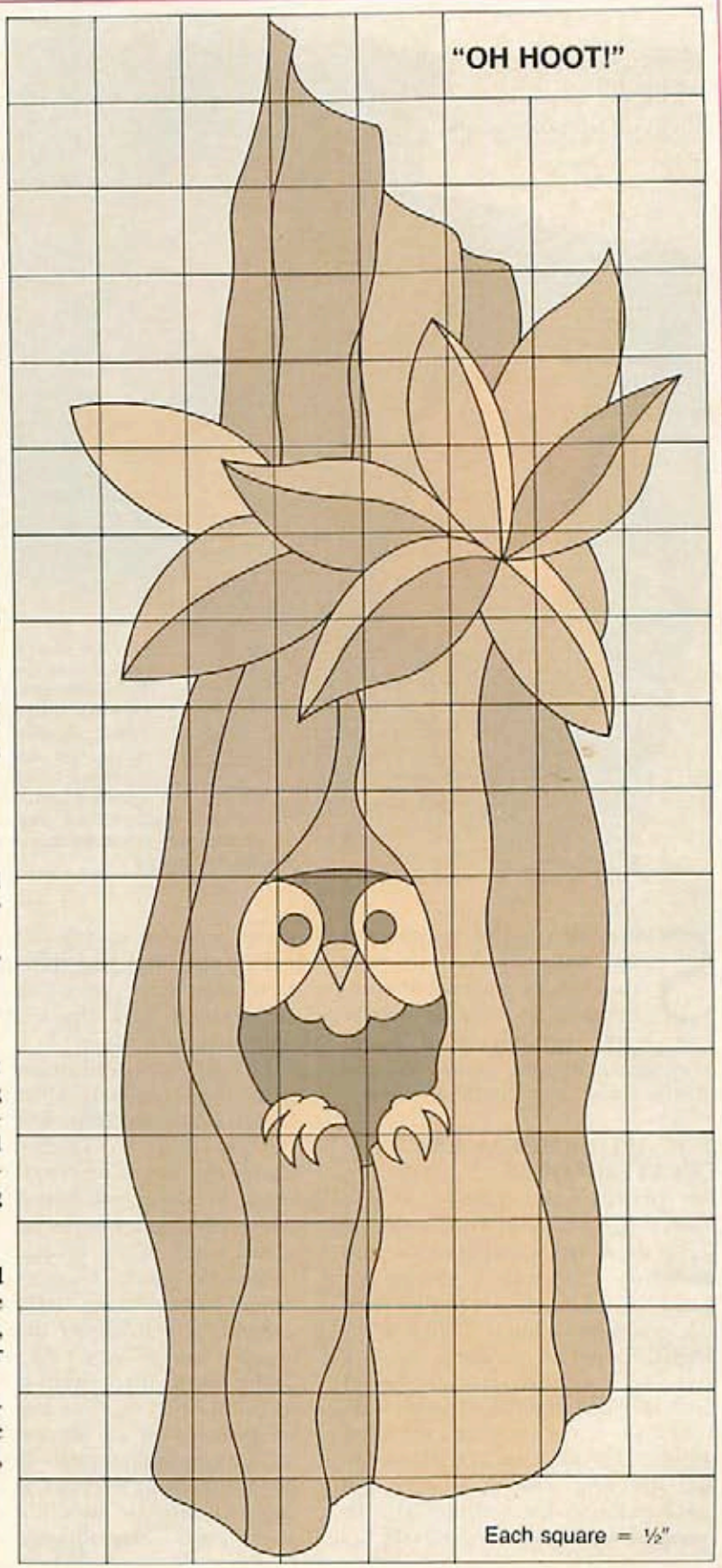
- **Carbon paper**
- **Medium tracing paper for the pattern**
- **One ¾x8x24" western red cedar board of any grade that shows color variety (or a selection of scraps)**
- **A ¼x8x24" piece of lauan plywood for backing**
- **Yellow woodworker's glue**
- **Clear finishing material**

Note: Judy always makes the frames first, but for this frameless project, she advises cutting out the pieces first. After you lay them in position on the backing, draw an outline around the picture with a pencil. Then, saw the backing to the shape of the pattern before gluing down the pieces.

To obtain a free full-size pattern, send a self-addressed, stamped, business-size envelope to: OH HOOT!, *WOOD*® Magazine, Locust at 17th, Des Moines, IA 50336. Offer expires Feb. 28, 1989.

For a list of Judy's patterns, send your request with a self-addressed, stamped envelope to J. G. Roberts Patterns, P.O. Box 1925, Lufkin, TX 75902.

Written by Peter J. Stephano
Photographs: Bob Hawks
Project design: Judy Gale Roberts



THE LAST STEP IN FINE CRAFTSMANSHIP

MAKE YOUR

With a good 35-mm camera, some inexpensive lights, a few accessories, a basic technique, and a little work, you can take excellent photos that capture and enhance the beauty of your woodworking projects.

Left: An electronic flash washed out the detail in the photograph of the carving and created a harsh shadow. In addition, the background distracts. *Above:* Two photo lamps, a photo background, and the techniques described in this article produced this photo.

Skimping on the finish of a carefully crafted project cancels out your woodworking skill. So do poor photos. And, in photography as in woodworking, technique, time, care, and quality tools yield the best results.

NOT ALL CAMERAS ARE CREATED EQUAL

For professional-quality, studio photos to document your work or send to juried competitions and craftsfairs, start with a 35-mm (or larger format, such as 120 film) single lens reflex camera (SLR). Why? Viewfinder-type cameras have a viewing lens separate and offset from the lens that takes the picture. Your eye never sees exactly what the film records. An SLR, however, uses the same lens for viewing and picture-taking. This enables you to compose your picture perfectly because you see exactly what you'll get on the film. And although most new SLRs have an automatic feature, you'll have the best results with manual settings.

For the bulk of project photography, the standard 50-mm focal length (distance from front of lens to film) lens works fine. It sees things the way your eye does. However, in some situations, such as when photographing small objects, it just won't do the project justice.

Most 50-mm lenses can't focus on objects closer than 18" from the camera, which means that objects smaller than 8" won't fill the viewfinder frame. If you want pictures of miniature pieces, solve the problem by purchasing an inexpensive set of close-up attachments that screw onto the front of your lens. Used individually or in combination, these accessories allow you to fill the frame with objects 1" tall.

Photographing large objects, such as a bed or hutch, in cramped spaces with a normal lens poses another problem—sometimes you can't back up far enough to fit all the object in the viewfinder. In this situation, a wide-angle lens works perfectly. Wide-angle lenses have focal lengths of 35 mm and lower. But, you can get too much of a good thing: The wider the angle (the lower the number), the easier it distorts.

A 50-mm lens may also distort somewhat. The part of the object closest to the lens can appear abnormally large, and vertical lines converge. Our eyes and brain compensate when we look at such an object, but not the camera lens. A longer-than-normal lens, such as an 85- to 135-mm, corrects the illusion.

Prevent damage to the lens by adding a lens shade. This inexpensive device also keeps stray light from degrading picture quality.

For the absolute sharpest photographs, you'll need a camera support that holds the camera still during the exposure. Tripods make the best supports, but you can get by with an inexpensive camera clamp—a C-clamp with a tripod screw attached. To increase your camera's steadiness during the shot, purchase a cable release so you won't have to touch the camera.

HOW TO BE SAFE AT THE RIGHT SPEED

Film has two critical characteristics—speed and type. Speed, expressed as a number, indicates how long the film must be exposed to

PROJECTS PICTURE-PERFECT

light before it accurately records what you're photographing. "Fast" films (higher numbers) require less light and exposure times than "slow" films (lower numbers). The usual trade-off for higher speed is less definition in your photo. For sharp pictures and tolerable times, select medium-speed films.

Type of film translates to prints or slides, and also whether you expose it with daylight, flash, or photo lamps. For black-and-white prints, a film such as KODAK PLUS-X PAN Film does the trick. For color pictures, you have two choices. Color prints require a film such as KODACOLOR VR-G 200 Film; for slides, use KODAK EKTACHROME 160 Film (tungsten). With an 80A filter that screws onto your camera lens, you can use a film made for daylight exposure—such as KODACOLOR VR-G 200 Film—indoors, with photo lamps.

Prints, both black-and-white and color, will do if you want to display your work. Most juried competitions, art fairs, and publishers only accept color slides (sometimes called transparencies).

LIGHTS AND BACKGROUNDS PROS RELY ON

In photographing your projects, you have three types of lighting to choose from. Daylight provides the most convenient source. However, you'll have little control. Sunny days produce harsh shadows. Overcast skies or shade won't give you enough lighting contrast and your photographs appear flat and lifeless.

Electronic flash, although inexpensive and portable, doesn't allow you to see the lighting effect until after the picture has been processed. You can't soften glaring highlights, lighten shadows, or eliminate reflections beforehand.

Photo lamps provide the best alternative to daylight and flash because you control the amount of light. Thus, you'll see the effects *before* you take the picture.

Shaped like large light bulbs, photo lamps are specifically designed for photographic use. A basic setup requires one *ECT* (500-watt) lamp, one *ECA* (250-watt) lamp (ECT and ECA are industry designations for lamp type and use), and two 10-12" photo reflectors rated for 500 and 250 watts. Either buy light stands for the reflectors, make your own, or purchase spring-loaded clamps you attach to a support.

To soften the light for project photography, you can use diffusers to position in front of the light. These are available ready-made, or you can make your own from a piece of matte acetate mounted to a frame. With this setup, don't let daylight into the room during photography or you'll disrupt color balance!

For backgrounds, you have two choices. Either photograph an object in a setting that relates to its use, such as outdoor furniture on a patio, or in front of a paper photographic background. In your first option, the project suffers from surrounding distractions. The second method focuses only on the object.

Standard backgrounds come in rolls 53" and 107" wide and a variety of colors. Many photographers prefer a medium gray, such as Thunder Gray or Slate Gray (standard industry colors).

You can buy or make a holder for the background to support it. Always unroll the background so that it comes down behind and under the piece to be photographed with a smooth transition from the vertical to the horizontal. For professional quality, never try to substitute a freshly ironed bed sheet for background paper—it will still look like a sheet!

A SET MADE FOR STARS

The technique for good composition begins with setting up the camera and tripod. Next, look through the viewfinder and determine the viewing angle that best illustrates your project. Usually, you position the camera so that you see the object as your eyes would. Photograph a table with the camera above it and tilted downward. To photograph a large armoire, keep the camera at eye level. Always move the camera close enough to the object so that the area of interest—your work—nearly fills the

Without fingers to give these pieces proportion, would you know they were only 1" tall? Items such as coins, keys, pencils, etc. also will work.

Continued

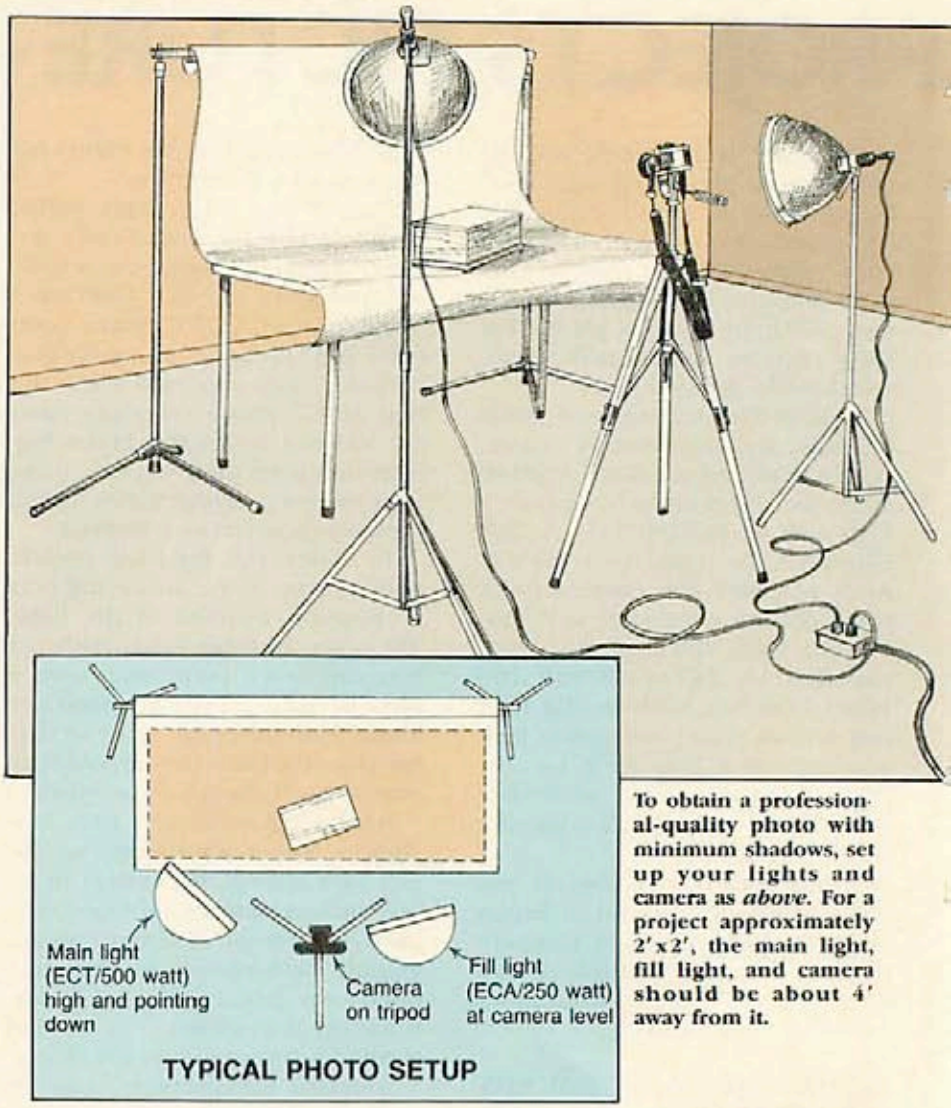
MAKE YOUR PROJECTS PICTURE-PERFECT

viewfinder frame, and carefully focus on the object.

If the size of an object isn't obvious, place a prop next to it to show relationship (see photo, *preceeding page*). Don't be afraid to turn the camera vertically to capture all the image in the frame.

To light your set so your work looks its best, arrange the photo lamps with the 500-watt light high and to one side of the camera and at a 45° angle to the subject. Place the 250-watt fill light near to and on the other side of the camera, as shown in the drawing at *right*. Diffuse the fill light or move it far enough back so that it won't cast a second shadow off the project.

When you adjust the lights, keep in mind that you want to show size, shape, texture, and detail (see jewelry box photo, *lower right*). You may need more than one photograph to completely show your work, as shown in the table photos, *far right*.



To obtain a professional-quality photo with minimum shadows, set up your lights and camera as *above*. For a project approximately 2'x2', the main light, fill light, and camera should be about 4' away from it.

THE LIGHT AND DARK OF CAMERA SETTINGS

With your work, the lights, and the camera in place, you next have to determine exposure settings. The two camera settings that determine the amount of exposure are aperture size (how much light actually reaches the film) and shutter speed (the length of time you allow the light to expose the film).

Aperture sizes show up as "f" numbers, such as f/16 or f/5.6. Fractions of a second indicate shutter speeds, such as ¼ or 1/250 of a second. The best combination for most of your project photography will be f/16 to f/8 with the corresponding shutter speed determined by your camera's metering system. These apertures give you more "in focus" area, called depth of field, than a wider setting, such as f/2.8.

To help determine exposure settings when light and dark woods and varying backgrounds might fool a camera's light meter, pros turn to the neutral gray card. Set this gray piece of cardboard near the object,

This properly lighted photo of a 12"-long jewelry box shows how a different amount of light illuminates each plane and adds dimension.

APPROXIMATE CAMERA EXPOSURE SETTINGS FOR EXAMPLE SHOWN IN DIAGRAM

TYPE OF PICTURE	FILM	FILTER	TYPICAL CAMERA SETTING*
Black-and-white print	KODAK PLUS-X PAN Film	None	1/8 sec. @ f/16
Color print	KODACOLOR VRG 200 Film	80A	1/4 sec. @ f/11
Color slide	KODAK EKTACHROME 160 Film (tungsten)	None	1/8 sec. @ f/16

Props help show the size of this cherry, black walnut, and padauk table. Often, you'll need more than one photo to show details not easily seen in an overall photo.

point the camera and fill the viewfinder frame with it, and the camera's built-in exposure meter makes an average reading compensating for shadows as well as bright spots. If you use an 80A filter to balance daylight film with photolamps, put the filter on the lens when you take the reading.

For the most satisfying results, borrow a technique from the pros called "bracketing." Bracketing consists of a series of five different exposures: the calculated exposure, and four others—two on either side of the calculated exposure—allowing more and less light to reach the film. For example, if your calculated exposure is 1/30 second at f/16, your bracketed series would be: f 1/8, f 1/15, f 1/30, f 1/60, and 1/125 second at f/16. You can also bracket by keeping the shutter speed constant and changing the lens aperture.

FOR A FINAL FINISH

When you have print film processed, always ask for glossy paper because it produces the best detail. Inspect the results. Look for proper exposure, sharpness, and color. Any problems in these areas may be your fault, but they could be that of the processing lab. Sometimes a lab can reprint a negative and improve the quality.

PHOTO SUPPLIES YOU'LL NEED FOR PRO-QUALITY PICTURES

(In addition to camera, lenses, and film)

Lens cleaner and tissue	$4
Cable release	5
ECA/ECT photo lamps, each	3
Tripod	40
Lens shade	5
Neutral gray card	7
Paper background (9' x 12 yards)	30
80A filter	10
Close-up lenses	15
10" light reflectors, each	25
Light stand, each	20
Light diffuser	15

Written and photographed by Gary A. Zeff
Projects crafted by: carving, David Yendes; miniature vessels, Jerry Glaser; jewelry box, Charlie Johnson; table, T. C. MacMichael

CURIOSITY GOT HIM

Brent L. Veleker, 38
Lockport, Illinois
Machinist

When Brent's mental gears start shifting to creation, he sprints for the woodshop. This time, what he went round and round about was the construction of a spinning wheel.

Researching spinning wheels provided Brent with only the rough dimensions he needed to complete his solid-cherry spinning-wheel project. But, he took it from there, first building the 1¾x6½x18" platform and the 20"-diameter great wheel that mounts on it. His calculations of 34" in overall length and 35" for height turned out to be on target.

About the spinning wheel he crafted, Brent says, "One of the hardest parts was making the wheel. The spokes are longer than the radius between the hub and the rim." In order to properly fit the spokes in place, he drilled holes in the four-piece, dovetailed rim and in the hub. Then, Brent sawed the hub in half, fitted the spokes in the rim, and glued the hub back together around the spokes.

Brent likes dark, rich, naturally aged cherry. To get it, but still protect the wood, he applied a clear Minwax finish. By the way, Brent also built his lathe, band saw, and jointer!

A JEWEL OF A BOX

Rusty Martin, 38
Poplar, Montana
High School Activities Director

Rusty's eye for detail shows in this musical jewelry box he made for his wife, Juanita. He resawed the walnut to precisely the thickness he wanted: top, ½"; sides and drawer front, 5/16"; drawer sides, ¼"; base, ¾", and ⅜" for the base trim. He assembled the 7x7x14" box with mitered joints and routed the thin edges. To mount the purchased, preassembled inlay flush with the top, Rusty says he cut out an area with router, chisel, and knife that "wasn't even ⅛" deep."

The drawer separates earrings and baubles. With a dado blade, Rusty notched two sets of ¼x1x6" strips, then crisscrossed them for compartments. So necklaces won't get hung up in the works, he boxed in the music box movement.

Rusty hand-rubbed the box with oil. He then applied a liquid wax.

To submit your projects . . .
Send a 35-mm color slide with the project as the focal point and a simple background — no people. Include a description of materials, special joinery, finish, and dimensions. *WOOD®* magazine will pay $25 for published projects. Slides cannot be returned unless you enclose a self-addressed, stamped envelope.

SHOWCASE

TEAMWORK HALVES THE EFFORT AND QUADRUPLES THE PROJECTS

Frank and A.J. Bock, 58 and 57
El Toro, California
Professor of Anthropology; Petroglyphologist

Not sold on the veneered cedar chests they saw in furniture stores, Frank and A.J. joined forces to make this 17x17x45" clean-lined, traditional chest of solid eastern red cedar which smells as good as it looks. Teeming with enthusiasm over their success, the brothers—who share unique professions in the study of ancient man and cultures—went on to make three more as gifts for their daughters.

Frank and A.J. edge-joined random-width, aromatic cedar boards they first planed down to ¾" thickness for top, bottom, and sides. Rabbeted joints hold the chest together; locking hinges brace the top. Inside, they constructed a tray made from precut, tongue-and-groove aromatic cedar sold for closet lining. The tray rests on a cedar railing to make it easy to lift out and remove large objects..

After sanding their way through multiple grits of sandpaper to a final polish with 0000 steel wool, Frank and A.J. finished the exterior with "seemingly dozens of coats" of tung oil. The interior was left unfinished so contents would be deluged in cedar fragrance.

After sharing the labor of four cedar chests, a rocking burro for a grandson, and other projects, the brothers still enjoy working together making sawdust in the shop. How's that for an enduring, woodworking brotherhood?

GLIDE-A-BY BABY IN GRANDPA'S OAK CRADLE

Daniel Schildkraut, 57
Mesa, Arizona
Retired Physician

As his first "built-from-scratch" project, Dan designed the 32"-high oak cradle for his expected grandchild around the size of a baby's mattress. The edge-joined, ⅝"-thick cradle sides slope outward seven degrees and butt-join with the end panels.

Dan liked the smooth, near-flat back-and-forth movement of a porch glider, and thought baby would, too, so he bought glider hardware to hang the cradle in its stand. The stand itself features oak bars and stretchers mortise-and-tenoned together.

To lighten the cradle's Mission-style appearance, Dan routed teddy bear and heart designs on the sides of the cradle and the stand. Several coats of Watco oil finished his project.

Send to:
Project Showcase
Better Homes & Gardens®
***WOOD*® Magazine**
Locust at 17th
Des Moines, IA 50336

A Terrific Trio

Liven up your kitchen work space with any or all three of our decorative boards. Not only will they stand the test of time, but they'll look darn good doing it.

BRIGHTEN YOUR KITCHEN WITH OUR

SUNBURST SINK BOARD

ART-DECO CHEESE BOARD 54

TEXAS-TOAST CUTTING BOARD 55

In our travels around the country, we see thousands of handcrafted cutting boards. But this one-of-a-kind design originated right here in our shop. Jim Boelling, our project builder, made these as gifts years ago. Jim's shortcuts make cutting and laminating the maple and walnut strips a snap for a stunning finished product.

Note: *This cutting board was made to fit a standard sink with a basin interior measuring 14x15¾". For a smaller sink, construct the laminated board as described, and cut it to size later. If your sink is larger, you'll need to make longer laminations and change the cutting angle of the taper jig.*

FIRST, CUT AND LAMINATE THE MAPLE AND WALNUT

1 Rip and crosscut seven pieces of 1⁹⁄₁₆"-thick maple (five-quarter stock) to 2¾" wide by 22½" long for parts A. (We cut all seven pieces from a board 6" wide by 8' long.)

2 For the walnut strips (B), set your table saw fence ¼" away from the inside edge of the saw blade. Rip 14 strips ¼" wide from the edge of a piece of 1⁹⁄₁₆"-thick walnut 22½" long. You also could cut 7 pieces of ¾" stock to 1⁹⁄₁₆" wide by 22½" long, and then resaw two ¼" strips from each piece.

3 With the surfaces flush, glue and clamp two walnut strips (one along each edge) to each piece of maple. Later, scrape off the excess glue.

MAKE THE TAPER JIG AND CUT THE WEDGES

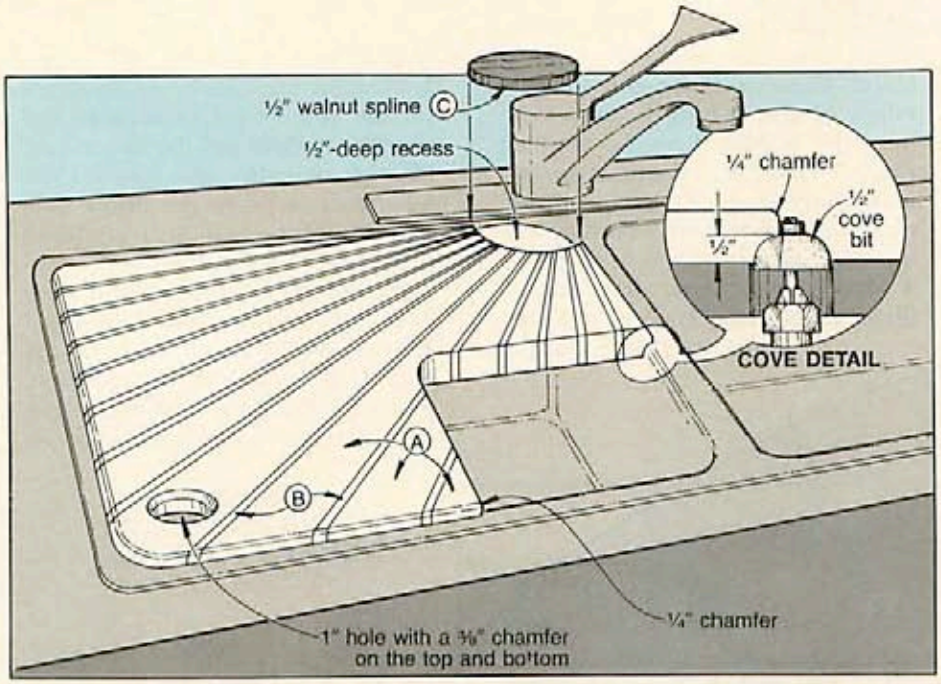
1 Cut a piece of ¾" plywood to 6" wide by 30" long. Mark three reference points where dimensioned on the drawing at *right.* Using a framing square, draw two lines to connect the points.

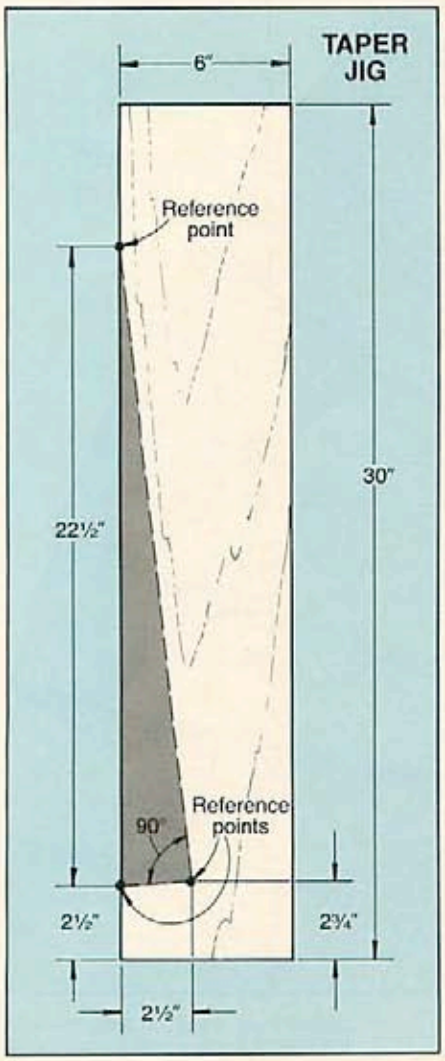
2 Cut along the marked lines to form the wedge-shaped taper in the plywood (we used a band saw).

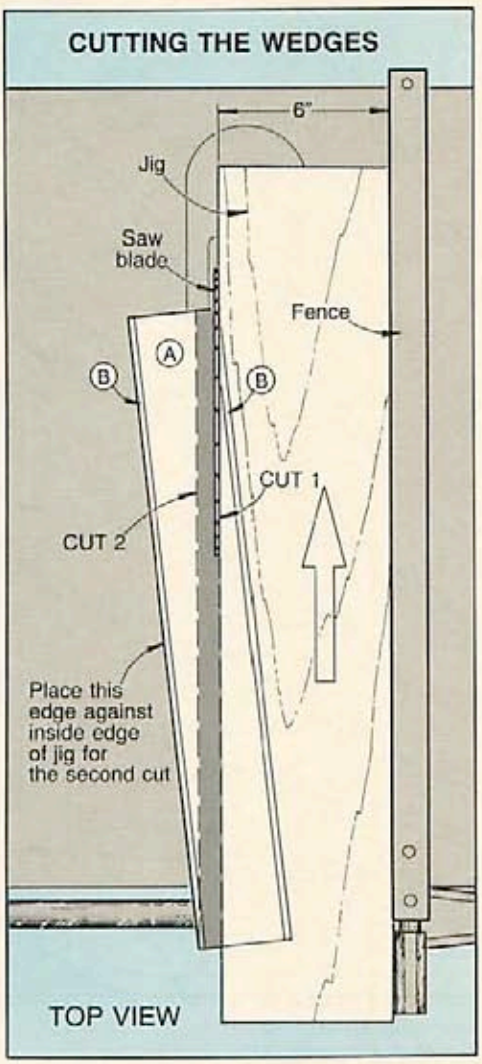
3 Position your table saw fence and jig where shown on the drawing at *far right.* Now, using the drawing as a guide, cut *two* wedge-shaped pieces from each lamination.

HERE'S HOW TO LAMINATE THE WEDGES

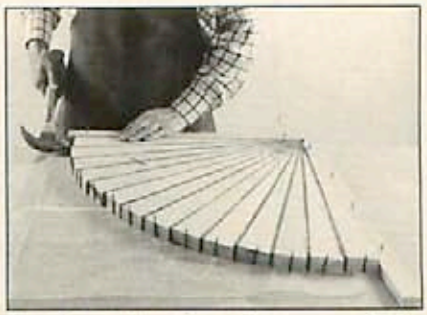
1 To form the clamping jig shown in the photo on the opposite page, lay a piece of plywood about 30" square on top of your workbench. Now, cut two pieces of ¾"-thick scrap stock about 1" wide by 26" long. Nail one of the strips onto the plywood near an edge. Then, position the 14 wedges, edge to edge, with the points converging where







shown in the photo *below.* While holding the laminated pieces tightly against one another, nail the second scrap strip to the plywood and against the other straight edge of the wedges. Remove the wedges from the clamping jig.



Tap the wedges into the corner of the clamping jig, and then hold the wedges in position with nails.

2 Lay waxed paper on the plywood between the strips. Spread woodworker's glue on the mating edges of the wedges, and position them where shown in the photo *above.* Now, lightly tap the pieces toward the inside corner of the jig, and drive a #6 finish nail into position at the end of each wedge. Check for a flush top surface and tight joints. (We found it necessary to tap a few of the wedges in tighter and renail after initially nailing all the wedges in place.)

3 Let the glue dry, remove the nails, and scrape the excess glue from the lamination.

CUT THE TEMPLATE AND CUTTING BOARD TO SHAPE

1 Measure the interior opening (front to back and side to side) of your sink basin (we measured ours 1" from the top edge). On a piece of cardboard, mark layout lines the exact size of your basin opening.

2 Mark a radius at three of the corners to connect the layout lines on the cardboard. Leave a square corner where the walnut strips converge; you'll mark and cut it to shape later. (To determine the necessary radius for a tight fit onto the sink basin later, we marked different sized radii on cardboard scraps, and cut them to shape. Next, we trial-fit

Continued

SUNBURST SINK BOARD

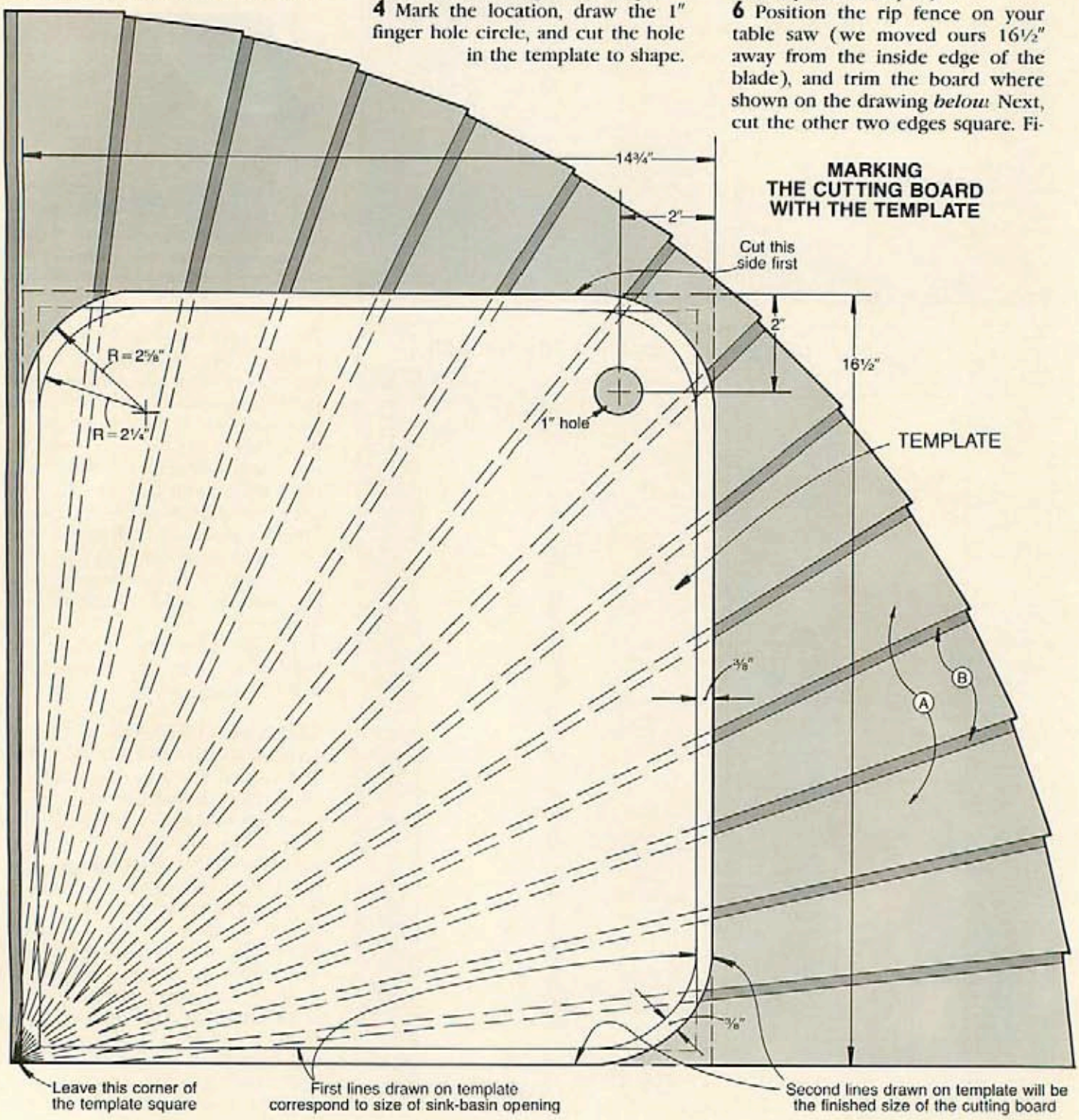
each scrap against the rounded inside corner of the sink. Once we found the right radius, it became a template to mark the three radii onto the cardboard template.)

3 Draw four more lines ⅜" *outside* and *parallel* to the first lines drawn (later these will be the outside edges of the cutting board). Connect the *outside* lines by marking radii ⅜" larger than the ones marked in the previous step (our outside radii measured 2⅝"). Carefully cut the cardboard template to shape.

4 Mark the location, draw the 1" finger hole circle, and cut the hole in the template to shape.

5 Position the cardboard template on the sink board lamination and trace its outline and the finger hole location onto the sink board. (You may need to move the finger hole around a bit until it is centered over a piece of maple.)

6 Position the rip fence on your table saw (we moved ours 16½" away from the inside edge of the blade), and trim the board where shown on the drawing *below*. Next, cut the other two edges square. Fi-



nally, use a band saw to cut the three rounded corners, and then sand them smooth.

7 Bore a 1" finger hole through the cutting board where marked.

NOW FOR THE SURFACE SPLINE

1 Cut a piece of 1 1/16" stock to 8" square for the drilling jig. Mark diagonals to find center.

2 Mark and cut a 3⅝"-square notch at one corner of the jig where shown on the drawing at *right.*

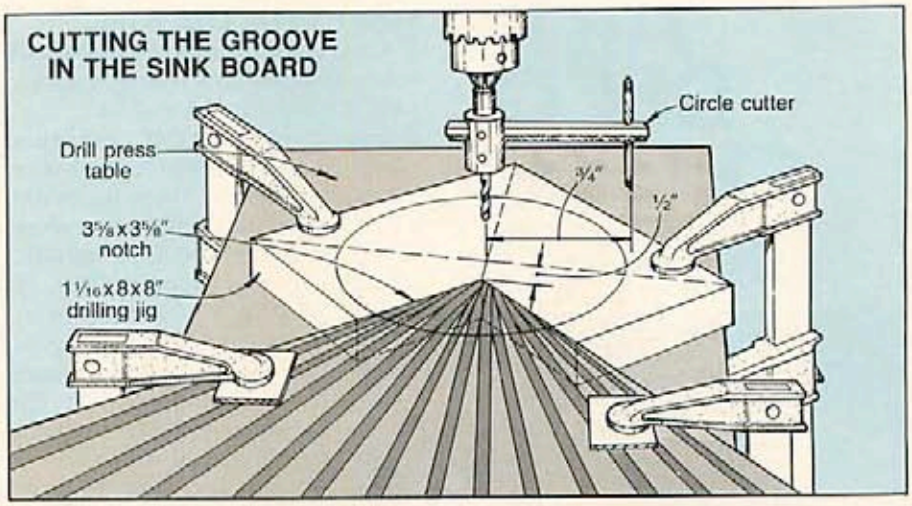
3 Chuck a circle cutter to your drill press, and position the *outside edge* of the cutter blade 3¼" from the center of the pilot bit. Raise the bottom tip of the cutter ¼" higher than the bottom of the bit. For a cleaner cut, you want the bit to make contact with the jig before the cutter enters the lamination.

4 Center the jig under the pilot bit, and clamp it to the drill press table. Slide the cutting board into the notched corner, and clamp it to the table. Start the drill, and *slowly* cut into the jig and sink board until you've cut ½" deep with the cutter. Remove the cutting board and jig from the drill press table.

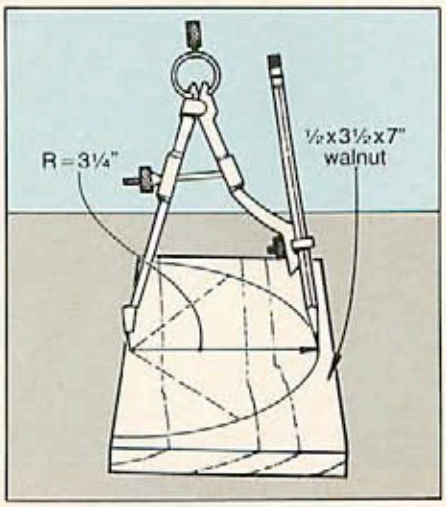
5 Fit your router with a ½" straight bit. Clamp the sink board and drilling jig (the jig helps support the router) to a workbench. Starting at the outside edges and working in, rout a ½"-deep recess in the corner of the board. Rout just up to the groove you cut with the circle cutter. Now, as shown in the photo at *right,* clean the ridge between the routed area and circle-cutter groove with a ½" chisel.

6 Mark a 3¼" radius on a piece of ½" walnut where shown on the drawing at *right.* Cutting just outside the line, band-saw the surface spline (C) to shape. Check the fit of the spline into the routed recess, and sand if necessary.

7 Glue and clamp the walnut spline into the recess, noting the direction of grain shown on the Exploded-View Drawing. After the glue dries, use the cardboard template to mark the radius on the splined corner, and cut it to shape.



After routing the excess material, clean the surface between the routed area and circle-cutter groove with a sharp chisel.



SANDING, ROUTING, AND FINISHING

1 Sand the sink board smooth.

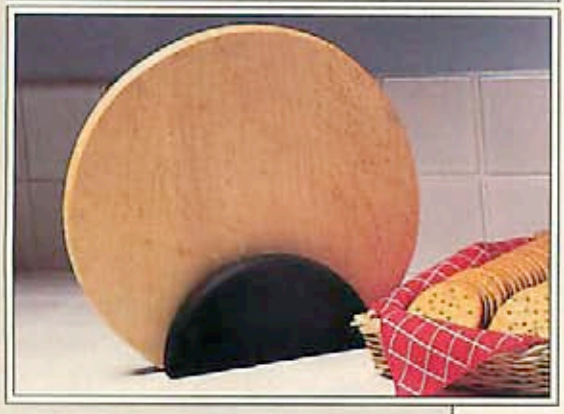
2 Rout a ½" cove along the bottom edge of the sink board (see the Cove Detail accompanying the Exploded-View Drawing).

3 Rout a ¼" chamfer along the top edge of the sink board and ⅜" chamfers on both edges of the 1" finger hole.

4 Finish-sand the sink board, and apply the finish (we used Behlen's Salad Bowl Finish).

Project Design: Jim Boelling
Photographs: Bob Calmer
Illustrations: Mike Henry, Bill Zaun

ART-DECO CHEESE BOARD



Our counter-conscious bird's-eye maple cheese board fills the bill for all of us who love to display our handiwork. At your service to handle a quick snack, this Art Deco-style entertainer goes back onto its ebony stand for conspicuous storage.

START WITH THE BASE

1 Cut two pieces of ¾"-thick ebony (walnut also would work) to 3x6" for the base sides (A).

2 Locate and mark a centerline across each piece where shown on the Exploded-View Drawing. Scribe a 2⅞" radius on each, cut to shape on the band saw, and sand smooth.

3 Cut the center support (B) to ⅞" wide by 17⅛" long from ¾" stock. Mark a ⅜" radius on one end (see the drawing for reference). Cut the radius to shape on the band saw, and sand smooth.

4 Using the dimensions on the drawing, mark the dowel hole center points on the center support. Clamp the support in a handscrew clamp, and drill the holes to size on a drill press.

5 Using the center support as a guide, center it over the marked centerline on one base side, and drill a pair of ⅜"-deep holes into the base side. (We held the center support in place with double-faced tape when drilling.) Repeat for the other base side.

6 Cut two pieces of ⅜" dowel to 1½" long.

CUTTING AND LAMINATING THE MAPLE BOARD

1 Cut three pieces of ¾"-thick bird's-eye maple to 3⅜x9¼" long for the cutting board (C). Glue and clamp the three pieces together edge to edge.

2 After the glue dries, scrape off the excess. Crosscut about ¼" off one end of the lamination to square it with the sides.

3 Mark the centerline and the radius center point on the board where shown on the drawing. Now, mark a 4⅞" radius on the board.

4 Center the support (B) over the centerline and flush with the bottom edge of the board. Trace the support's outline onto the maple board. Now, cut the board and the notch to shape.

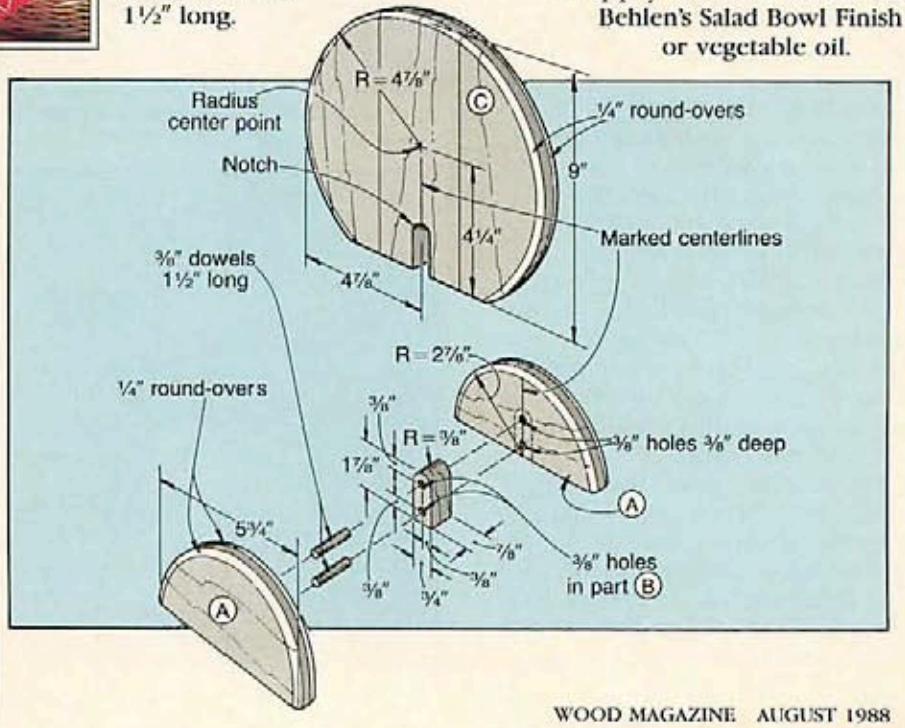
ROUTING AND FINAL ASSEMBLY

1 Rout a ¼" round-over along the edges (not on the bottoms) of the board and base sides where shown on the drawing. Sand smooth.

2 Glue, dowel, and clamp the center support between the base sides. Scrape off any excess glue.

3 Check the fit of the maple board on the base, and sand the notch if required for a good fit.

4 Apply several coats of Behlen's Salad Bowl Finish or vegetable oil.



Project Design: Dave Ashe
Photograph: Jim Kascoutas
Illustrations: Kim Downing, Bill Zaun

TEXAS TOAST CUTTING BOARD

Bite into the construction of this cutting board tonight, and you'll be ready to serve sandwiches on it tomorrow. It's one great cutting board any way you slice it.

Produced by Marlen Kemmet
Project Design: Dave Ashe
Photograph: Jim Kascoutas
Illustrations: Kim Downing, Bill Zaun

LAMINATING AND SHAPING THE BOARD

1 Rip and crosscut three pieces of 1 1/16"-thick stock (we used Honduras mahogany) to 3 1/2 x 12" long. Glue and clamp the pieces together edge to edge, with the edges and ends flush. Later, scrape off the excess glue, and sand the top and bottom surfaces smooth.

2 Crosscut the ends for an 11 1/2" finished length.

3 Now, using the dimensions on the drawing and a compass, mark the radii. Cut the board to shape on a band saw. Leave a square corner at the bite mark; we'll cut it to shape later. Sand a slight round-over on all edges.

"TOASTING THE CRUST" AND APPLYING THE FINISHING TOUCHES

1 To darken the edges of the cutting board, singe them with a small propane torch, being careful not to burn the top and bottom surfaces. Darken the edges to a uniform color. If you don't have a torch, you could stain the edges darker.

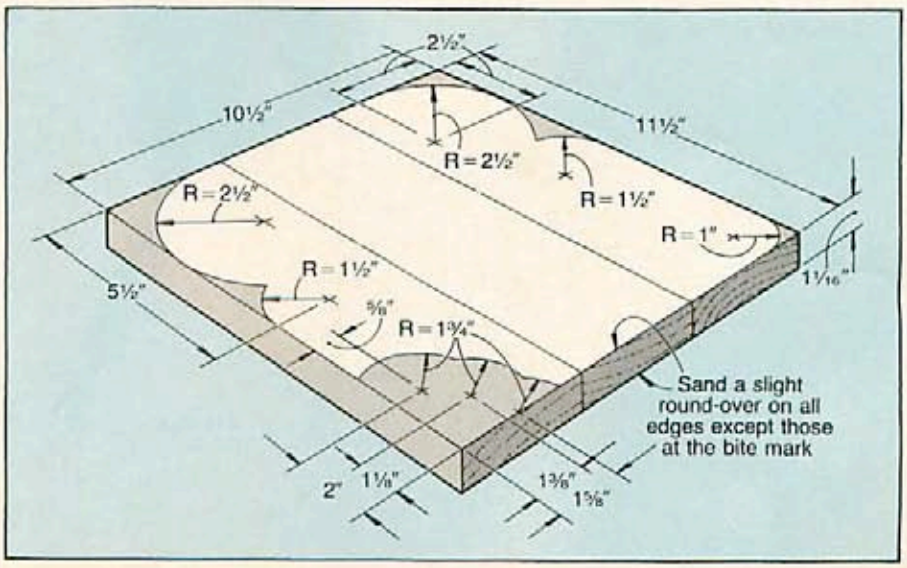
2 Now, cut the bite mark to shape on a band saw.

3 Sand the top and bottom surfaces of the board smooth again. This will help remove any burn marks or stain that may have seeped to the surface.

4 Apply the finish (we applied several coats of salad-bowl finish). See the Buying Guide for our source.

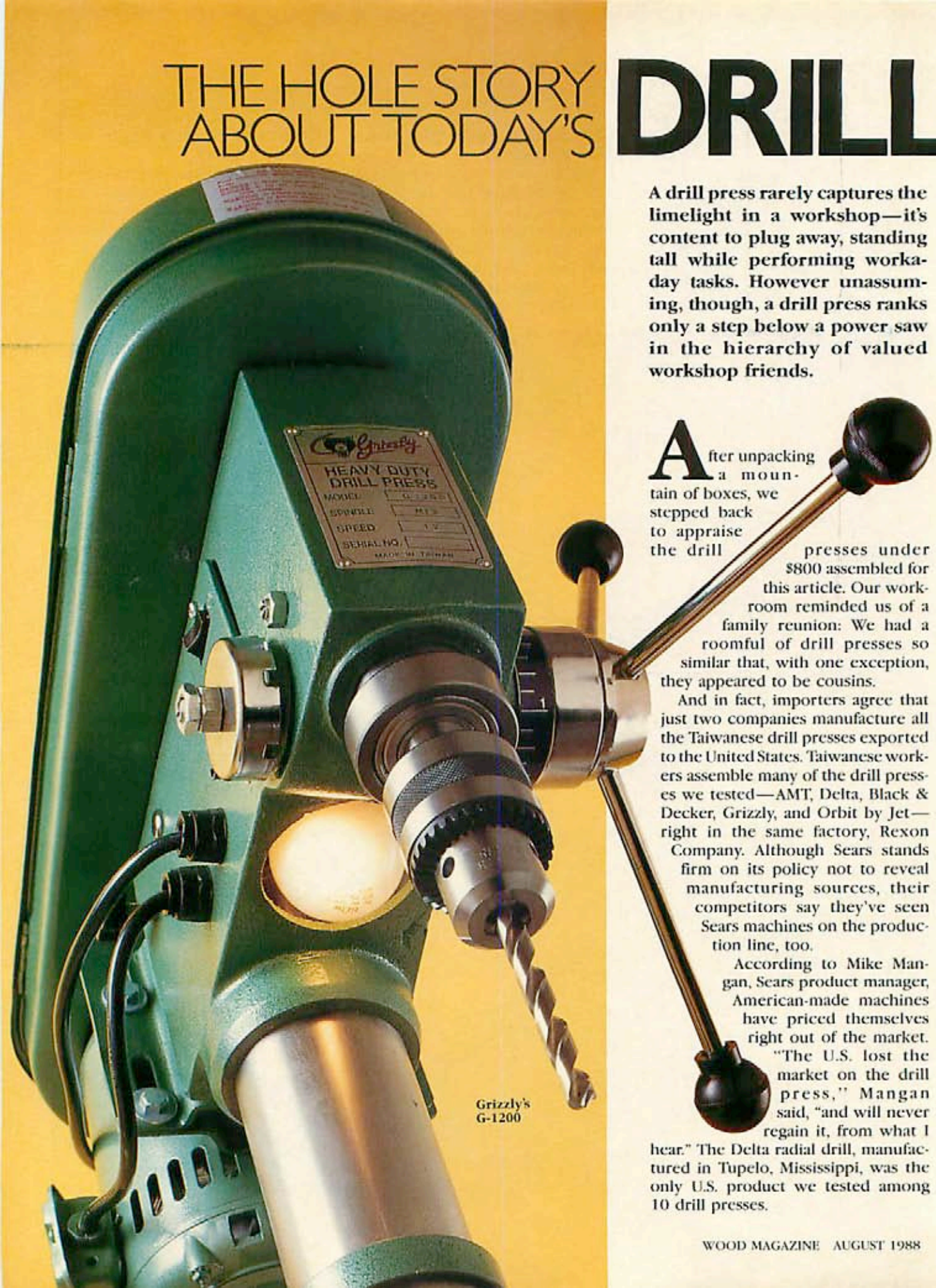
BUYING GUIDE

• **Behlen's Salad Bowl Finish.** One quart, catalog no. BB616, $12.95 ppd. Constantine's, 2054 Eastchester Rd., Bronx, NY 10461; 800-223-8087, 800-822-1202 in New York.



THE HOLE STORY ABOUT TODAY'S DRILL

A drill press rarely captures the limelight in a workshop—it's content to plug away, standing tall while performing workaday tasks. However unassuming, though, a drill press ranks only a step below a power saw in the hierarchy of valued workshop friends.



Grizzly's G-1200

After unpacking a mountain of boxes, we stepped back to appraise the drill presses under $800 assembled for this article. Our workroom reminded us of a family reunion: We had a roomful of drill presses so similar that, with one exception, they appeared to be cousins.

And in fact, importers agree that just two companies manufacture all the Taiwanese drill presses exported to the United States. Taiwanese workers assemble many of the drill presses we tested—AMT, Delta, Black & Decker, Grizzly, and Orbit by Jet—right in the same factory, Rexon Company. Although Sears stands firm on its policy not to reveal manufacturing sources, their competitors say they've seen Sears machines on the production line, too.

According to Mike Mangan, Sears product manager, American-made machines have priced themselves right out of the market. "The U.S. lost the market on the drill press," Mangan said, "and will never regain it, from what I hear." The Delta radial drill, manufactured in Tupelo, Mississippi, was the only U.S. product we tested among 10 drill presses.

PRESSES

In particular, we noted similarities in the head assembly, elevating track, power cords, switches, and tightening knobs. A couple of the machines even packed identical generic instruction manuals!

But that's where the similarity ends: Engineers from American firms specify how they want their machine built in Taiwan. They may specify American-made motors, Japanese-made sealed bearings, or their own ON/OFF switch. And certainly, engineers specify a production quality level based on price.

Inside the head, most drill presses look like the Black & Decker, above. Combinations of belt arrangements on the pulleys set different speeds.

DRILL PRESSES: WHO NEEDS ONE, ANYWAY?

Drill presses continue to be one of the most popular stationary power tools in the home workshop. A recent survey of *WOOD* magazine readers indicates that nearly 60% already own a drill press. An additional 11% of our readers plan to purchase a drill press in the next 12 months.

The woodworker's yearning for a drill press stems from a need to precisely control drilling, often repeatedly drilling hole after hole to a prescribed depth. And although most of us routinely drill 90° to the surface, nearly all of the larger drill presses we tested offer a tilting table to drill angled holes.

But drilling holes represents only a fraction of drill press capabilities. The drill press shines at drum-sanding, mortising, countersinking, and other tasks. (A related story beginning on page 26 outlines numerous ways to expand the use of a drill press.)

THE IMPORTANCE OF SPINDLE SPEED

We tested drill presses with up to 16 speeds ranging from 150 spindle rpm to 4,700 rpm. From talking to shop experts around the country, we found out that if there's any drill-press shortcoming, it's that too many operators fail to understand or heed recommended spindle speeds.

In our own *WOOD* magazine shop, we have ruined several expensive large-diameter Forstner bits by running them at too high a speed—it's just too convenient to run the machine on the last-used belt arrangement. And once the bit begins to smoke, you've destroyed the steel temper.

When you flip open the top of larger drill presses, you'll see three step pulleys connected by two V-belts. On the inside of the lid or on the head, a chart tells you how to set up the two belts to attain each desired speed. Most charts won't tell you, for example, how fast to run a 1½" Forstner bit in maple. (You'll want to see page 6 for details on how to order *WOOD* magazine's drill speed chart.)

So for drill presses, it's the range of spindle speeds and the horsepower that you must carefully consider. We did detect differences between the ½- and ¾-horsepower motors when running larger bits and circle cutters. Sadly, at least one importer has proof that some companies slap ¾-horsepower labels on ½-horsepower motors.

CHOOSING BETWEEN FLOOR AND BENCHTOP MODELS

Before getting too involved in a drill press purchase, you'll have to choose between a tabletop and floor model. But only you can match a drill press with your pocketbook and space requirements.

The benchtop press will continue to be popular in small workshops where space dictates limitations. Some woodworkers lug their drill press to a workbench and bolt it down whenever the need arises. The smaller, lightweight Black & Decker and Sears benchtop models fit this application.

The sturdy AMT and Orbit benchtop machines we tested weigh too much for one person to place either machine on a bench. You should mount both of these machines—full-size drill presses with a short column—to a bench or table.

However, most woodworkers rarely move their drill press table lower than 7" to 9" below the chuck—the range of benchtop models. We put a new drill press in our shop three years ago and still haven't cranked the table lower than 8". And if, for example, you had to bore a hole into the end of a table leg with your benchtop press, you should be able to swing the head around and drill off the floor.

Unfortunately, for woodworkers without floor space, benchtop presses do eat up a lot of precious workspace. But if you can spare floor space and an extra $40-$100, consider purchasing a floor drill press. You can forget lugging a drill press onto a table or spending the time and money to make a separate table for a benchtop unit.

Continued

THE SPINDLE—THE HEART OF THE MACHINE

Quill travel describes the depth of a hole you can drill without changing the table elevation. Most of the Taiwanese models we tested have a 3¼ to 3½" quill travel. Three exceptions—the Grizzly G-1201, the Black & Decker 1782, and the Orbit 1758—have even longer reaches.

We believe a drill press should be free of runout—the condition when the circular drilling motion becomes eccentric. Because three-jaw chucks don't necessarily clamp the bit exactly on center each time, we reinstalled the bit at least twice more to check for runout. The presses passed our test with no signs of appreciable runout, although the big Grizzly and the Black & Decker drilled with less vibration.

But remember we tested new machines. Will you experience runout in a few years? It's only a guess. We can't attest to the quality of the sealed ball bearings in the spindle assembly, shown *below*; but we can tell you only Delta's radial drill has durable, expensive thrust bearings.

Engineers designed these machines to press vertically. If you apply a lot of sideways pressure, such as routing (not advised with a drill press) or drum-sanding, you could damage the ball bearings. Only the big Grizzly, as shown in the photo *bottom right*, and the Delta radial have a bolt to eliminate play between the quill and the head.

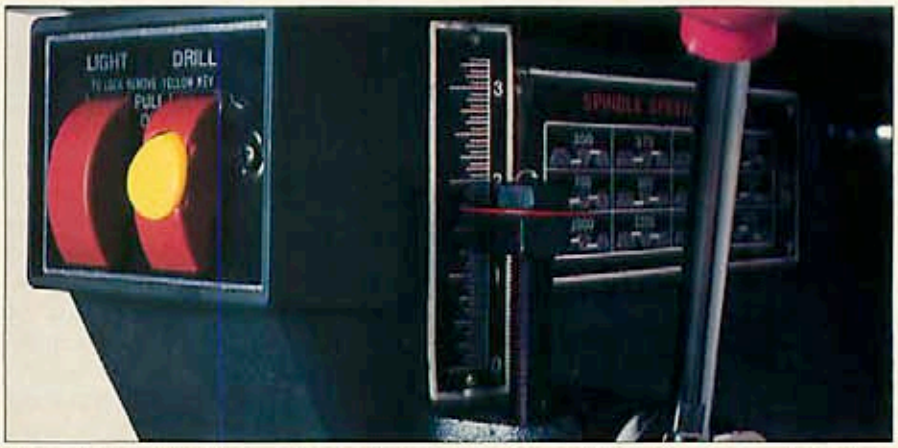
All of the floor models have three-jaw ⅝" chucks, many of them made in the Rexon plant. Orbit, not satisfied with Taiwanese quality, ships their machines with German-made Rohm chucks.

DEPTH CONTROL CHOICES OFFER ADVANTAGES

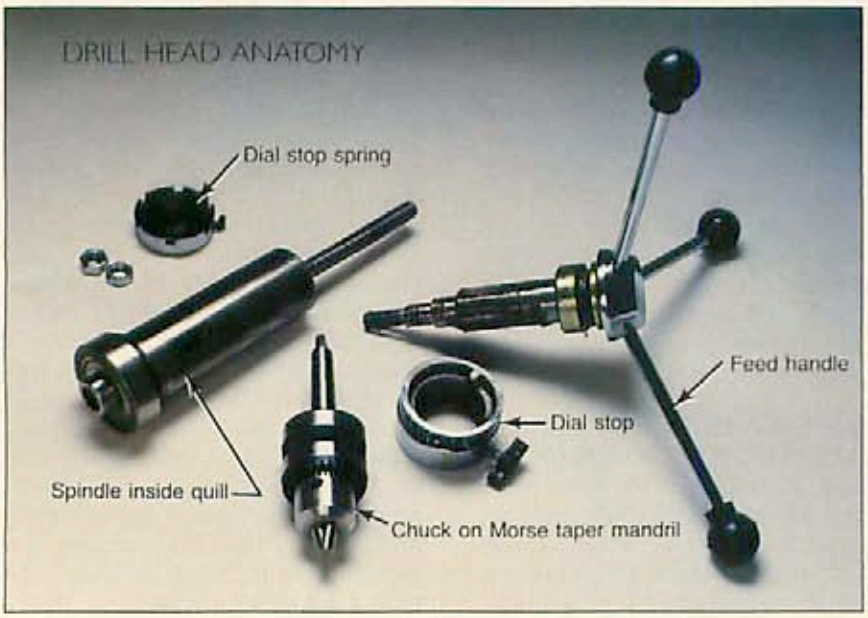
Most of the machines we tested have a dial-stop system to lock in the desired depth of the hole. To establish a drilling depth, "zero" the dial, lower the drill bit to the desired level, and lock in the depth.

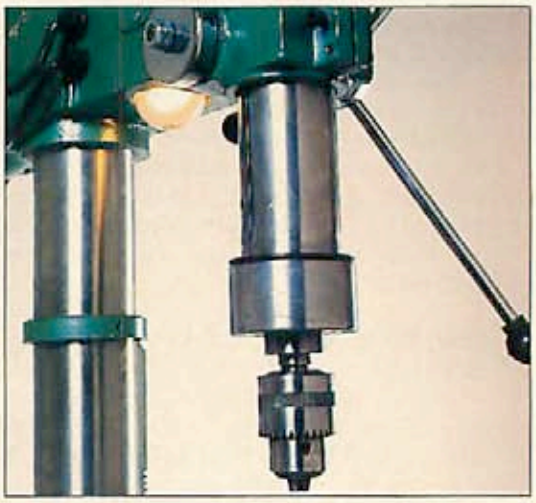
If you fail to firmly tighten the locking knob and then apply a lot of pressure to the feed handles, you can pound past the depth stop and drill too deep. And sadly, you can't take *full* advantage of the extra-long quill travel of Black & Decker, Orbit, and big Grizzly presses because dial stops allow you to set only to about 3¾" drill depth.

Setting a depth with a threaded rod, shown in the photo *below*; requires a little more setup time. With a wrench, you must lock two nuts together on the thread rod. Even though the threaded rod system takes longer to set, we believe this mechanism performs more reliably.



A threaded rod depth stop, shown above on the Sears 21385, takes longer to set than the dial systems, but the threaded rod ensures more accurate repetitive drilling.





The 5¼" quill travel on the Grizzly G-1201 outdistanced all the others we tested. By adjusting the allen bolt, *top center*, the operator can eliminate spindle play between the quill and the head.

WHATEVER HAPPENED TO THROAT DEPTH?

If you haven't followed drill press marketing in the past few years, you may be surprised that most manufacturers no longer speak of throats to express the maximum depth between the column and the drill-bit center. In today's advertising world, the same drill press that once had 7" throat now has a 14" swing—the maximum diameter of a circle you could spin around without hitting the column. That's advertising!

TABLE MATTERS

We expected all the tables to tilt, but were surprised to find Black & Decker's 1782 table fixed at 90°, as shown in the photo *below*.

The Black & Decker table has another deficiency. Although all of the other floor drill presses we tested have a cranking device to raise and lower the table, you must push the Black & Decker table by hand.

We think a floor-model drill press needs to have a rack-and-pinion table to lessen the chance of injury and to fine-adjust the table height. Without a cranking mechanism, a 25-pound table can easily accidentally drop and crush fingers.

Michael Austin, product manager for Black & Decker, confirms that his firm uses original Toolcraft castings formerly produced in another Taiwanese plant. "We are looking to make improvements in our drill press," Austin says. 'We have recognized the faults and there will be improvements in a redesigned, upgraded unit we plan to introduce early in 1989. We think it will be a super unit and it will be sold under the DeWalt label."

Only the Sears table has the tilting scale on the same side as the tightening handle as shown in the photo *below*. On the negative side, note in the photo *below* how the front of the Sears table hits the column when swung around.

Most of the drill presses we tested have a forgiving hole in the center if you accidentally pilot too deep. However, Orbit ships their 1458F drill press with a milling table seen primarily in metal shops. Because milling tables must retain coolant to bathe metal, they lack a center hole—and thereby a forgiving margin of error if you drill too deep.

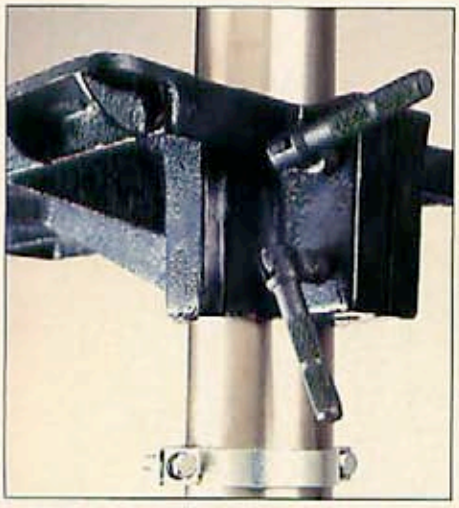
FINAL OBSERVATIONS

We'd like to see better depth-stop knobs and belt-tension lock handles. The locking bolts with plastic knobs work fine until the plastic breaks off—only a carriage bolt remains. In the photo *below*, compare the plastic knob to the Sears and benchtop Black & Decker knob with a pinned flipper lever.

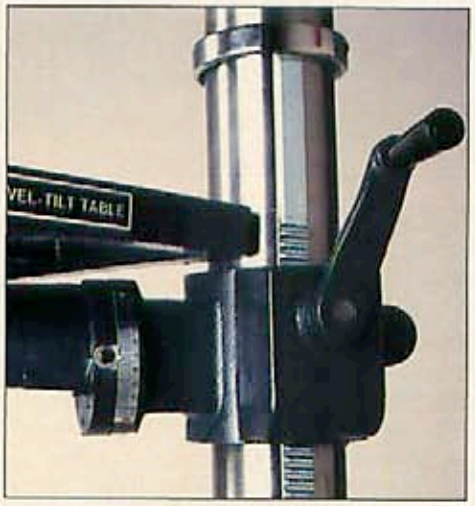
Most of the engineers curiously specify the ON/OFF switch on the side of the drill press. Sears and Delta put their switch in front where you can get to it quickly. They also incorporate a plastic safety key to prevent curious hands from turning on the machine.

And finally, the bottom line: cost. In our tests, the lower-priced machines held their own against machines that retail for twice as much. Think long and hard before you spend $400 on a drill press that performs like a $200 model.

But don't overlook quality and a dealer network. Dean Ruffner, a Jet product manager, minces few words about today's competitive market. Of the drill presses on the market, Ruffner says, "I'm seeing a downhill run on quality to become competitive. The first way a company cuts cost is in the service department. Then you can cut costs by accepting lower-quality motors and chucks. We once had a 10 percent return on motors until we upgraded about eight years ago. The average consumer won't notice some differences, but Taiwan will build any quality level you want."



Black & Decker's table lacks a rack-and-pinion cranking mechanism found standard on other floor-model machines we tested. In addition, we missed the ability to tilt the work surface.



Unlike other floor models, Sears places its tilting guide conveniently near the handle used to raise and lower the table. However, the squared front edge of the Sears table hits the column.

Most of the machines have plastic locking knobs, *left*, to tighten depth stops and belts. The flipper lever used on some Sears and Black & Decker machines, *right*, should give more service.

DRILL PRESSES UNDER $800: TALE OF THE TAPE

	Manufacturer	Model	Speeds: Number	Speeds: Low	Speeds: High	Spindle: Quill Travel (inches)	Spindle: Depth Stop[1]	Motor: Chuck Capacity (inches)	Motor: Horsepower	Motor: RPM	Table: Locking System[2]	Table: Swing (inches)	Table: Tilt	Rack and Pinion	Table Travel[5] (inches)	Work Light	Height (inches)	Weight (pounds)	Warranty	Suggested Retail Price[7]
Benchtop Models	AMT	4590	12	250	3100	3¼	D	⅝	¾	1725	H	12½	Y	Y	8	Y	32	102	10 yrs.	$185
	Black & Decker	9400	5	620	3100	2	TR	½	⅛	1720	H	8	Y	N	7	N	23¾	45	2 yrs.	$202
	Delta	11-950	5	620	3100	2	TR	½	¼	1720	H	8	Y	N	7	N	23¾	45	2 yrs.	$160
	Delta	11-072	4	700	4700	3⅛	TR	½	½	1725	NA[3]	32	NA[3]	N	10¾	N	36	126	2 yrs.	$450[6]
	Orbit	OR-1758	16	260	3650	4⅛	D	⅝	½	1725	D	17	Y	Y	14¼	Y	42	179	90 days	$319
	Sears	21372	3	700	3000	2⅛	TR	⅜	⅛	1725	H	8	Y	N	5	N	23½	39	1 yr.	$114.99
	Sears	21383	4	480	3000	2⅛	TR	½	¼	1725	D	10	Y	Y	7¾	N	32	79	1 yr.	$199.99
Floor Models	AMT	4560	12	250	3100	3¼	D	⅝	¾	1725	H	12½	Y	Y	25¾	Y	63	125	10 yrs.	$231
	Black & Decker	1782	12	250	3000	3½	D	⅝	½	1725	D	16½	N	N	25¾	N	66	190	1 yr.	$404
	Delta	17-900	12	250	3000	3½	D	⅝	¾	1720	D	16½	Y	Y	25⅞	N	66	180	2 yrs.	$399
	General	34-01	6	460	4910	4½	TR	½	1	1725	D	15	Y	0[4]	39½	0[4]	66½	185	1 yr.	$786.91
	Grizzly	G-1201	9	150	2470	5⅛	D	⅛	¾	1720	D	18	Y	Y	21¼	Y	68	340	1 yr.	$395
	Grizzly	G-1200	12	250	3100	3¼	D	⅝	½	1720	D	14	Y	Y	27⅛	Y	66	210	1 yr.	$225
	Orbit	OR-1458F	16	260	3650	3¼	D	⅛	¾	1725	D	14	Y	Y	25	Y	66	212	90 days	$369
	Orbit	OR-1758F	16	260	3650	4⅛	D	⅛	¾	1725	D	17	Y	Y	29⅛	Y	66	216	90 days	$395
	Sears	21385	12	300	4600	3⅝₁₆	TR	⅝	½	3450	D	15	Y	Y	24½	Y	66	167	1 yr.	$429.99
	Sears	21384	5	400	2800	3⅝₁₆	TR	½	½	1725	H	13	Y	Y	26½	N	66½	152	1 yr.	$279.99

1. (D) Dial (TR) Threaded rod
2. (S) Single knob
   (D) Dual knob
3. (N/A) Head tilts, swivels, and moves in and out; table doesn't tilt
4. Optional
5. Maximum distance table lowers from bottom of chuck
6. Includes stand, but no motor
7. Prices may be discounted 10-30%

MANUFACTURERS LIST: DRILL PRESSES

American Machine & Tool Co.
Fourth Avenue and Spring Street
Royersford, PA 19468
215/948-3800

Black & Decker Inc.
Call 800-235-0870
for nearest dealer

Delta International Machinery Corp.
246 Alpha Drive
Pittsburgh, PA 15238
800-438-2486

General by J. Philip Humfrey
3241 Kennedy Rd. #7
Scarborough, Ontario M1V2J9
800-387-9789

Grizzly Imports
P.O. Box 2069
Bellingham, WA 98227
206/647-0801

Orbit by Jet Equipment & Tools
1901 Jefferson Ave.
P.O. Box 1477
Tacoma, WA 98402
800-426-8402

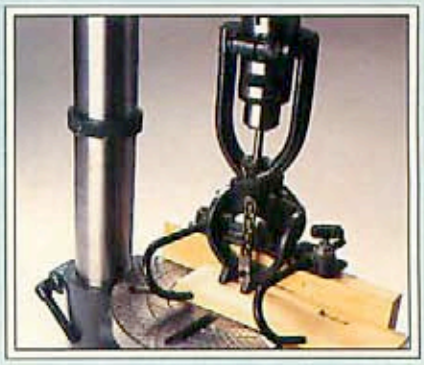
Sears, Roebuck & Co.
Contact local store for
latest tool catalog

MORTISING SHORTCUT

For the woodworker who occasionally relies on a mortise-and-tenon joint, a mortising attachment for a drill press answers the call.

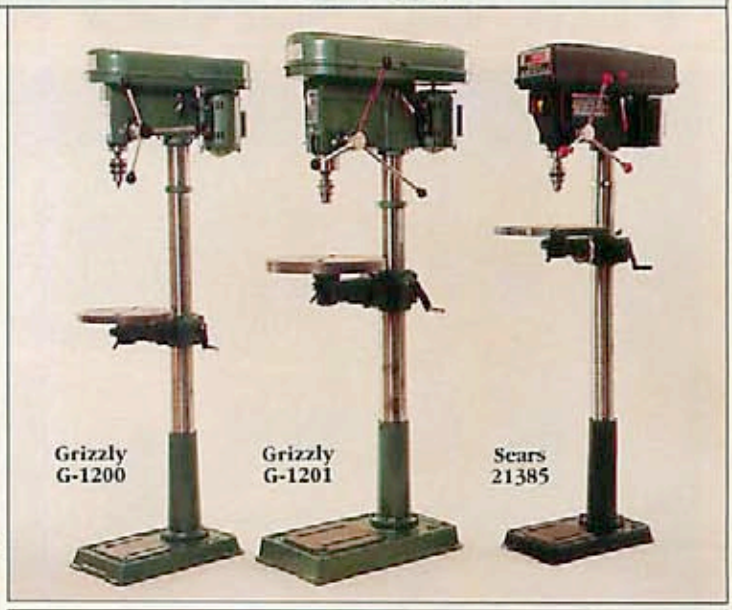
Complete mortise attachments cut from ¼" to ⅝" mortises and start at about $30—considerably less expensive than purchasing a plunge router and much faster than chiseling by hand. The setup requires attention to detail, but a slow feed rate minimizes deflection of a specialized bit surrounded by a box-cutting chisel.

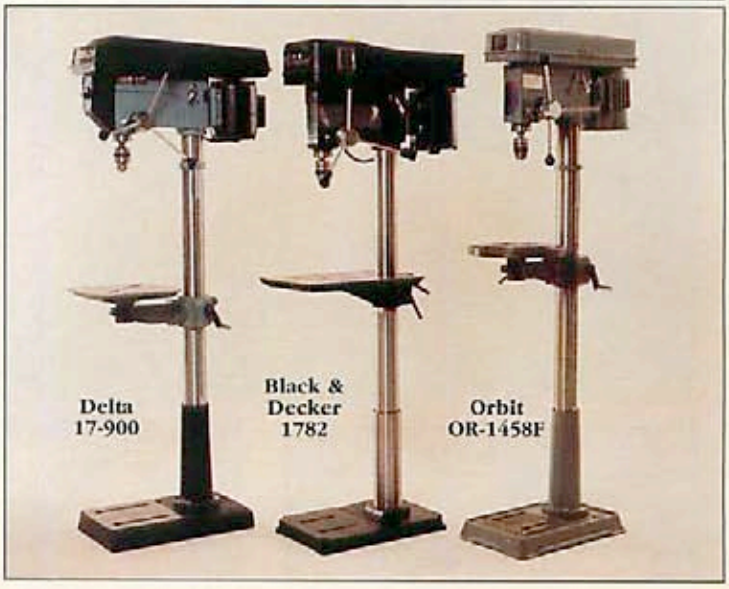
You should only consider mortising attachments with replacement bits. As with the AMT attachment we tested, *right,* most attachments include hold-downs absolutely essential to accurate work. Mortise the ends first and then connect the two holes with successive holes.



BENCHTOP MODELS

FLOOR MODELS





DELTA'S DISTINCTIVE RADIAL PRESS

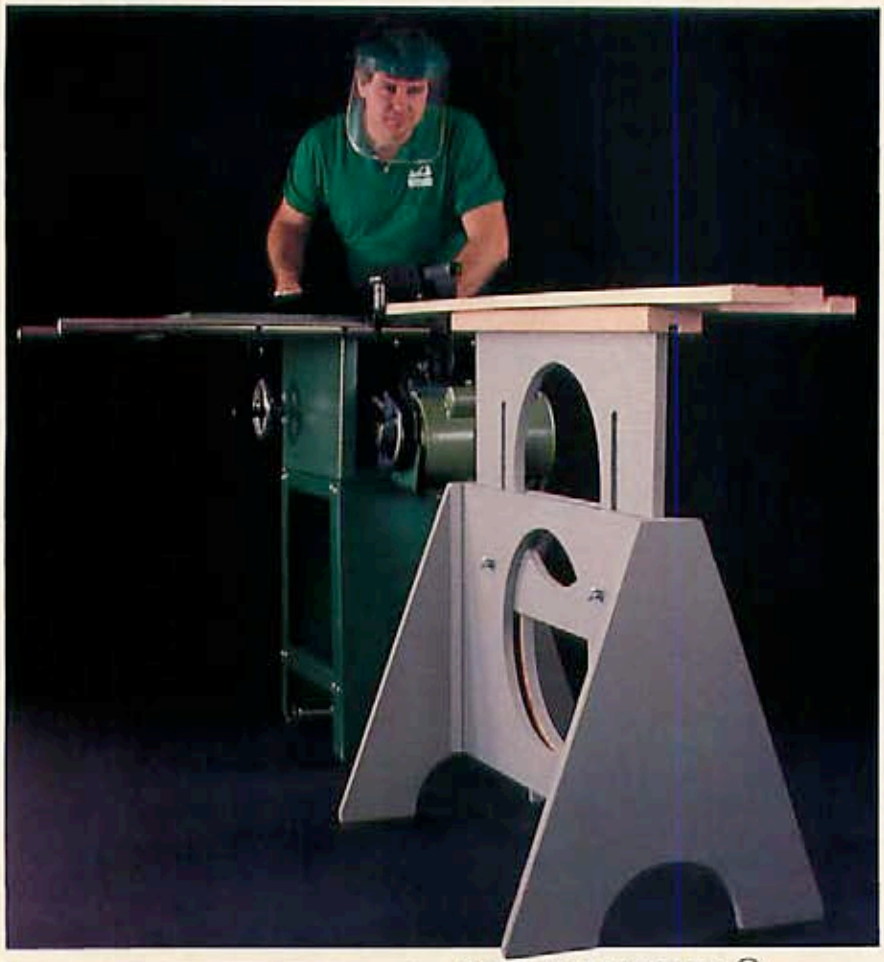
Perhaps Delta should rename their 32" radial press a "radical press"—there's nothing like this machine on the market for under $5,000. It's the only machine we tested that we could tilt the head, which greatly simplifies drilling holes at an angle on long stock. Woodworkers also love the 32" swing—created by the head that slides in and out on the column. For these features, woodworkers pay a premium price for this benchtop machine.

This threaded-rod stop adjusts quickly. In addition, it's easy to turn the head 90° and disc-sand or polish in a convenient position.

Unfortunately, the radial's slowest speed—700 rpm—runs faster than the recommended speed for circle cutters and most Forstner bits in hardwood. And, we miss a table with a cranking mechanism.

Written by Carl Voss
Technical Consultant: George Granseth
Photographs: Jim Kascoutas

TRIPLE-CROWN SAWHORSE



This handy-to-have-around sawhorse literally rises to the occasion. Build one for use as a ripping support, or build a pair and raise projects to back-pleasing heights.

FORM THE END SUPPORTS

1 Cut two pieces of ¾" plywood (we used A-C fir plywood) to 20x22¾" for the end supports (A).

2 Cut two pieces of ¾" maple to ¾" wide by 20" long for the banding (B). Glue one piece to the bottom of each end support.

3 Using the dimensions on the Exploded-View Drawing, mark a centerline the length of one end support. Measuring from the centerline, lay out and cut the angled sides on one end support. Use this support as a template to mark the shape onto the second end support, and cut it to shape.

4 From the center point at the bottom, mark a 4" radius. Cut the arc to shape, and again use this support as a template to mark the arc onto the second support. Cut it to shape, and sand both arcs smooth.

ATTACH THE CENTER PANELS TO THE END SUPPORTS

1 Cut the spacers (C) to size. Center the spacers on each end support, and glue and screw them into place, using the hole sizes in the Screw Hole Detail.

2 Cut the two center panels (D) to size. Locate and mark the center of one panel, and mark a 14"-diameter circle. Drill a blade start hole, cut the circle to shape with a jigsaw, and sand smooth. (The circle cutting helps reduce the total weight of the sawhorse.) Trace the circle outline onto the second panel, and cut that circle to shape.

3 On one center panel, mark the locations for the two ⅜" holes, referring to the drawing for dimensions. Clamp the two panels together with the edges flush, and drill ⅜"

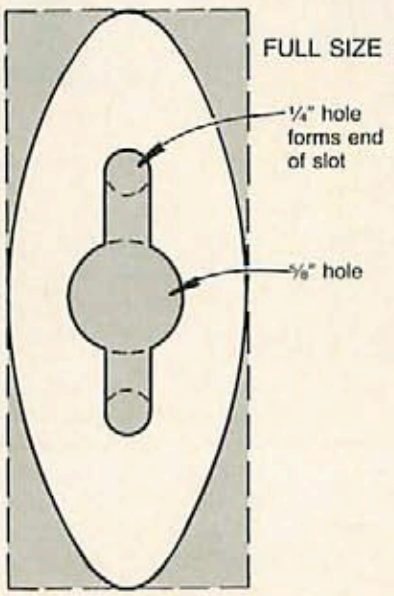
Bill of Materials

Part	Finished Size* T	W	L	Material	Qty.
A*	¾"	20"	22¾"	plywood	2
B*	¾"	¾"	6"	maple	4
C	¾"	13⁄16"	19½"	maple	2
D	¾"	19½"	30½"	plywood	2
E	¾"	¾"	19½"	maple	4
F*	¾"	19"	29"	plywood	1
G	1½"	3½"	34"	pine or fir	1
H*	¾"	1¼"	3"	maple	1

*Parts marked with an * are cut larger initially, and then trimmed to finished size. Please read the instructions before cutting.

Supplies: #8x1¼" flathead woodscrews, 1—#8x1¼" roundhead wood screw, 2—⅜x3" carriage bolts with flat washers and wing nuts, primer, paint.

WING NUT WRENCH Ⓗ



holes through both panels where marked. Remove the clamps.

4 Cut the four maple corner braces (E) to size, bevel-ripping a chamfer along one edge of each.

5 With the top edges flush, glue and screw one center panel (D) to a spacer (C) on each end support (A). See the Screw Hole Detail for hole sizes. Repeat for the second panel. Now, glue and screw the corner braces (E) into position.

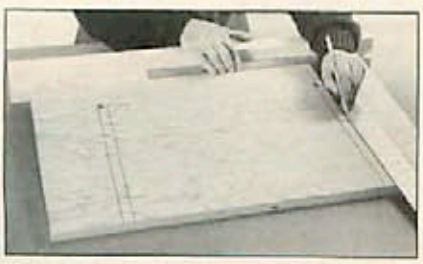
ADD THE ADJUSTABLE CENTER SUPPORT

1 Cut the adjustable support (F) to 19 x 29". Mark and cut a taper on each end of the piece (see the Exploded-View Drawing for dimensions).

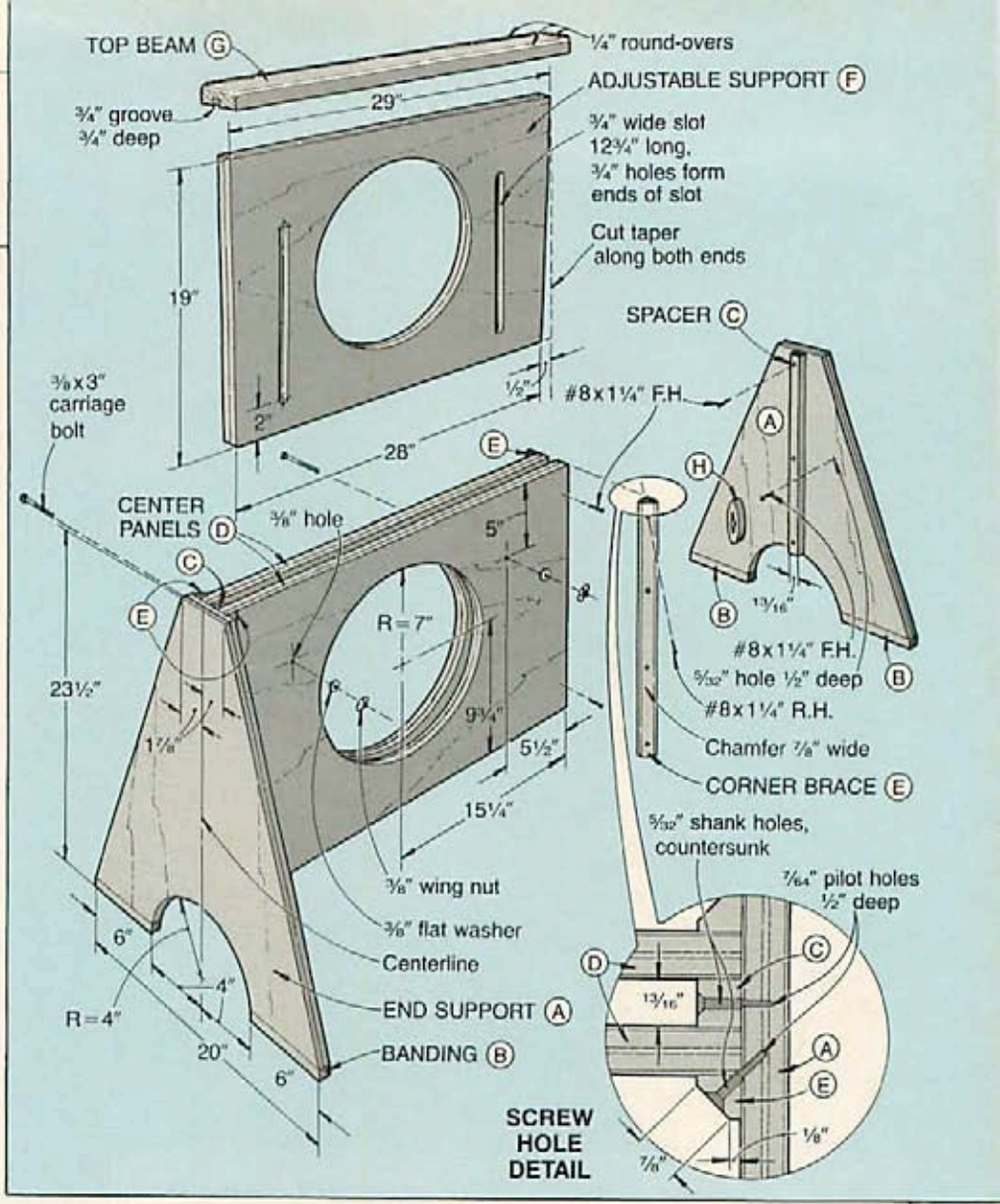
2 Cut the top beam (G) to size (we cut ours from a 2x4). Rout a ¼" round-over along the top edges. Cut or rout a ¾" groove ¾" deep down the center of the beam. Center and glue the beam to the top of the adjustable support.

3 Slide the adjustable support between the center panels. Using the two previously drilled ⅜" holes in the panels as guides, drill just far enough into the adjustable support to make a mark.

4 Remove the support, and drill a pair of ¾" holes through the support where marked with the ⅜" bit. Now, as shown in the photo *below*, mark parallel lines on each side of each ¾" hole to the bottom of the support. Center and bore a ¾" hole between the lines 2" from the bottom of the support where shown on the Exploded-View Drawing.



Mark lines on the adjustable support, perpendicular to the beam, on each side of the holes.



5 Using a jigsaw, saw along the marked lines from hole to hole to form the slots where shown on the Exploded-View Drawing.

6 Slide the support between the center panels until the top beam rests on top of the center panel, and trace the 14"-diameter circle onto the support. Remove the support, and cut the hole to shape.

MAKE THE WRENCH AND ADD THE CARRIAGE BOLTS

1 To make the wrench (H) for ease in loosening and tightening the wing nuts, cut a piece of ¾" maple to 1¼ x 3". Using tracing paper, transfer the wrench pattern onto the stock. Drill the holes where shown, and cut the wrench interior and exterior to shape.

2 Sand the parts smooth, and prime and paint as desired.

3 Position the adjustable support between the center panels. Install the carriage bolts through the holes. Slide a flat washer onto each bolt, and then thread on the wing nuts. Drill a 5/32" pilot hole ½" deep, and add a #8 x 1¼" wood screw to hang the wrench.

4 Raise the adjustable support to the desired height, and use the wrench to tighten the wing nuts.

If you have an uneven shop floor, the tapered sides on the adjustable support allow the support to be tilted and positioned level.

Project Design: Jim Boelling, James R. Downing
Photographs: Bob Calmer
Illustrations: Kim Downing, Bill Zaun

KEEP

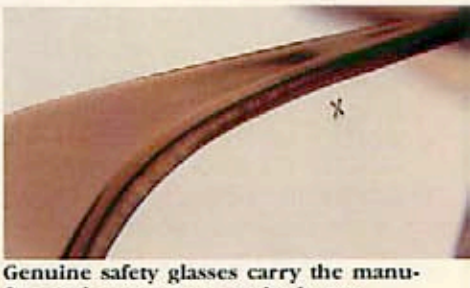
Wood splinters and

Whatever excuse you might have for not wearing eye protection in the shop, it won't hold up. Today's standard lineup of safety glasses presents dozens of style and comfort options to fit all budgets. However, when it comes to a standard of protection, there's only one.

'REAL' SAFETY GLASSES HAVE A PEDIGREE

"Real" safety glasses *must* meet ANSI Z87.1-1979 ("Z87" for short), the performance standard for protective eyewear set by the American National Standards Institute (ANSI). ANSI, a voluntary organization, coordinates the development of standards used in business, industry, government, and educational institutions. It wrote the Z87 standard for the workplace. But, your home workshop differs only in size, not in the number of possible hazards you risk.

Most safety glasses or goggles manufactured after 1979 that meet Z87 will have that fact right on



Genuine safety glasses carry the manufacturer's monogram on the lenses.

Frames that meet the Z87 standard usually carry this marking.

Don't have illusions about protecting your eyes. According to the National Society to Prevent Blindness, hospital emergency rooms annually treat at least 35,000 people for eye injuries received in the home workshop! Jim Boelling, *above*, our Project Builder at *WOOD*® magazine, once nearly counted himself among the statistics.

"I was working for the local school district in their furniture factory," Jim recalls. "The union required us to wear both eye and ear protection. So, I was wearing my safety glasses one afternoon when I started up the big, straight-line saw to rip 2x2" table legs from rough, 8/4 oak. As I turned to feed more board into the blade, it happened. WHAM! My glasses exploded off my face and dropped. I heard tinkles like a handful of buckshot on a tin roof as carbide flew everywhere. A chunk of barbed wire buried in the wood had fractured 14 of the 28 carbide teeth on that saw!" he exclaims. "One tiny piece of carbide had hit the edge of the lens, chipping it. My optometrist said the carbide would have penetrated my eye socket and probably killed me if I hadn't worn my safety glasses. To this day, I can't help viewing thick boards with suspicion—through safety glasses!"

SAFETY IN SIGHT

metal fragments strike fast. Safety glasses will protect you.

them. Look at the lenses (usually in the top center or outside edges at top and bottom). As shown in the top photo, *below left,* each lens displays the manufacturer's monogram or trademark—such as *TO* for Titmus®, *AO* for American Optical, *X* for UVEX, *VC* for Pearle Vision Center. Inspect the frame on the front and temple or ear pieces and you'll see a *Z87*, bottom photo, *below left*. Older glasses may only carry the lens marking.

Although these markings generally hold true in indicating compliance with Z87, a few very contemporary, wraparound styles, though completely safe, carry no marking at all. Kathy Peterson, a spokesperson for American Optical, maker of the "Saf Scanner," a one-piece molded model of safety eyewear, explains: "ANSI sets the minimum performance standard for designs of glasses with a frame and two lenses. Our Saf Scanners are of one-piece construction. They meet or exceed ANSI Z87. But, because of the design, we cannot imprint the designation on them."

LENSES AND FRAMES: PARTNERS IN SAFETY

Both the frame and the lenses of safety glasses work together for the utmost protection. If only one partner meets the standard, the pair won't protect you.

For instance, the lens might not shatter under an impact. The impact, though, could drive the lens *out of a regular frame and into your eye!* Lenses in plastic safety frames must be mounted from the front with a strong retention lip to prevent them from projecting back into the eye. Metal frames use an equally effective lens insertion.

Warning: Don't confuse "impact resistant" lenses with industrial quality safety glasses. Regular prescription (Rx) glasses are, by law, required to be impact resistant. However, safety glasses must withstand nearly four times the impact (in foot-pounds of pressure) of regular prescription glasses.

Frames for regular glasses have no strength or impact requirements to protect you. But safety frames, like safety lenses, must tolerate pressure and impact from the front and sides. Metal frames, for example, must show no cracks or solder breaks after being bent in half until the lenses touch, and then straightened.

YOUR OPTIONS IN SAFETY EYEWEAR

Top-notch eye protection should be your only consideration when it comes to selecting eyewear. The chart, *next page*, details the minimum eyewear protection you need for different types of woodworking processes and hazards.

Your eyesight, however, partially determines your style options. For instance, if you don't require corrective lenses, you can choose (1) goggles, (2) prefabricated safety eyewear *(prefabs)* with noncorrective clear *(plano)* safety lenses already in place, or (3) safety frames in which plano safety lenses are inserted.

If you need corrective lenses, you can (1) wear goggles or prefabs designed to be worn over your regular glasses, or (2) order prescription safety glasses made.

Contact lens wearers can (1) wear their contacts protected by goggles, prefabs, or safety glasses with plano lenses, or (2) remove contacts and wear prescription safety glasses instead. Note: Contact lenses — either hard or soft — *do not* protect your eyes. Never wear them in shop situations without adequate safety eyewear.

THE COST OF QUALITY PROTECTION

Surprisingly, protection at the Z87 level starts at $1.89, and may go as high as $100. Generally, at the lower end of the scale you're trading off some optical clarity in the lenses and custom fit. On the high end, you'll get glasses you can wear in the shop and out to dinner, too.

Prefabricated plano safety eyewear, either as glasses or in a wraparound style, comes ready to wear with plano lenses in place for $4 to $25. Prefabs offer many choices in style: (1) regular spectacle lookalikes with side shields that may or may not be removable, (2) ones that wrap around your face, giving you wider peripheral vision, and (3) glasses in which the shields are an integral part of a plastic frame.

You can wear some prefabs over prescription glasses. Others have adjustable temples or come in more than one size. When you purchase prefabs from an eyewear specialist, the specialist usually can make some adjustments for a better fit.

In general, you'll pay more for "prefabs" that have frames and lenses of the same quality as regular glasses. The quality of the optics usually ascends with the price, although some pairs for $5 still have good optics.

Prescription safety glasses give you a custom fit, usually the clearest look at your work, and, if you choose, a pair of glasses you could wear all the time (with side shields removed). Prices for most safety frames fitted with single vision prescription safety lenses range from $30 for a not-so-stylish pair to $60 for plastic-framed glasses (bifocals and trifocals cost more) that look as handsome as any fashion pair. Some plastic-framed and metal-framed pairs soar to the $100 level.

Continued

KEEP SAFETY IN SIGHT

A few safety glasses have permanently attached side shields; some have no shields. Most safety glasses, though, can be fitted with side shields. Side shields provide you with 20 to 25 percent more protection than safety glasses alone, according to Dr. Joseph F. Novak, a University of Pennsylvania clinical professor of ophthalmology and eye-safety consultant to U.S. Steel. And, shields add only $1 to $5 to the price. The bottom line: Buy shields and wear them.

GOGGLE-EYED OVER SAFETY

Fitting closely to your face, goggles give you the best impact protection from every angle. They're the safe choice when you work with chemicals, such as strippers (see chart for special chemical goggles). Many goggles with an adjustable elastic band fit easily over regular glasses. Neoprene head straps may be used with chemical goggles.

And yes, some goggles even prove comfortable worn over prescription glasses. But at only $2 to about $10, goggles won't be the highest quality optical product. What you see may be a little fuzzy. "Seeing with a slight distortion through goggles won't harm your eyes. Instead, it will save them," reminds Dr. Novak. We found, by the way, that goggle optical quality does vary greatly between brands and price ranges.

SAFETY LENSES—A TOUGH MATCH FOR STEEL WOOL

Both plastic and glass lenses can meet the Z87 standard. However, plastic—specifically *polycarbonate* plastic—receives the highest recommendation from a safety standpoint from a majority of manufacturers. Polycarbonate tops glass and CR-39®, another high-quality plastic, for impact resistance.

You'll find that plastic lenses have greater impact resistance than glass. They're also lighter. And although plastic lenses do pit and scratch easier than their glass equivalent, this won't reduce their impact resistance as with glass.

You should always ask for "scratch-resistant" lenses. Scratch resistance, like safety lenses, has come a long way. For example, in Titmus® test comparisons, their scratch-resistant lenses are eight times more resistant to scratching from a pencil than uncoated lenses. At Pearle Laboratories, the scratch-resistant lenses test 15 times more resistant than untreated ones when rubbed with 0000 steel wool!

HOW TO DEAL WITH MULTIPLE DISTANCES

If you want to see to saw safely, you may need bi- or trifocals. If your regular glasses, for instance, magnify so you can see clearly close up, but your vision gets fuzzy when you work at the table saw, you can get one pair of safety glasses made to cover both distances. Consult an ophthalmologist or optometrist about your specific distance problem. He or she can write a prescription that will correct for two or three distances.

Another option: If you almost exclusively do one type of woodworking at a single distance—such as lathe turning—you can get single-vision safety glasses or bifocals corrected to a specific distance(s).

Your prescription for correction won't specify safety glasses. That's up to you to request. Simply order frames and lenses that meet ANSI Z87. When your glasses arrive, inspect them for the manufacturer's monogram on the lenses and the Z87 imprinted on the frames.

Note: *You won't always find safety glasses on display because they rarely account for a large percentage of sales. Ask for them.*

STOP YOUR GLASSES FROM ATTRACTING SAWDUST

Static electricity attracts sawdust to lenses, especially plastic ones. Dennis Tumminello, a woodworker who heads Pearle Laboratories in Dallas, has the solution: "Start with scratch-resistant lenses for some antistatic protection. Then, clean them with ArmorAll®, a product available at hardware stores."

Type		Manufacturer
READY TO WEAR		Jackson Prod. Arden Safety
		American Optical Corp.
		American Optical Corp.
		UVEX Winter Optical Inc.
		Titmus Optical Inc.
CUSTOM-FIT		Titmus Optical Inc.
		Titmus Optical Inc.
		Liberty Safety
		Titmus Optical Inc.
		Titmus Optical Inc.
SAFETY GOGGLES		Jackson Prod. Arden Safety
		UVEX Winter Optical Inc.
		Titmus Optical Inc.
		UVEX Winter Optical Inc.
		Titmus Optical Inc.

WHERE TO BUY SAFETY GLASSES

- ***Hardware stores and home centers*** sell goggles and prefab safety eyewear. However, all of their products may not meet the Z87 standard, so read labels and warnings carefully.

SAFETY EYEWEAR LINEUP

	TYPE							PROTECTION					FEATURES									COST			
	Plano Z87 lenses	Rx Z87 lenses	Permanent shields	Detachable shields	Permanent wire-mesh shield	Brow shields	Wear over normal glasses	Wipe-on chemicals only	Chemical sprays	Hand tools only	All tools	Frontal impact protection only	Dress-work wear	Adjustable temple	From eyewear specialists	At hardware or safety suppliers	Scratch-resistant lenses available	Fog-resistant lenses available	Metal frames	Plastic frames	Under $20 w/plano lenses	Under $20 Frame only	$35-$50 Frame only	About $100 Frame only
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• ***Opticians and optical centers***, such as Pearle Vision Centers, Sterling Optical, and others, fill prescriptions, make prescription safety glasses, sell safety glasses with plano lenses, and sell prefab safety glasses. Some, with affiliated optometrists, also write prescriptions.

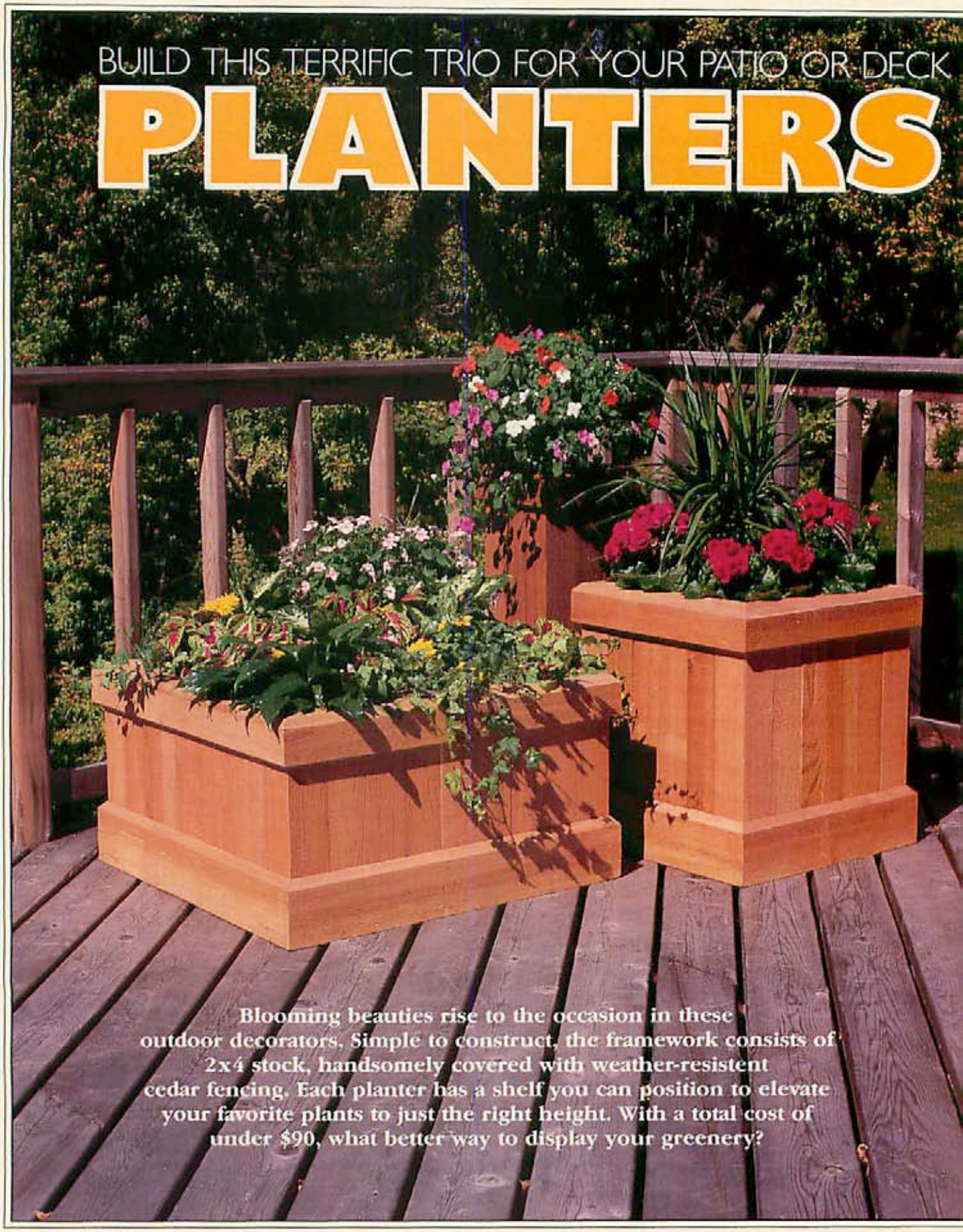
• ***Optometrists*** usually provide the services of opticians and optical centers, plus they test your eyes. *Ophthalmologists* are doctors of medicine who also prescribe corrective lenses. Some will dispense glasses; others only provide the prescription you fill elsewhere.

• ***Safety specialty stores*** carry goggles and prefabs and from bulk often will break out a single pair for you. Find them in the Yellow Pages under "Safety Equipment."

Written by Emily Freeman Pinkston
Photographs: Hopkins Associates; Jim Kascoutas

BUILD THIS TERRIFIC TRIO FOR YOUR PATIO OR DECK

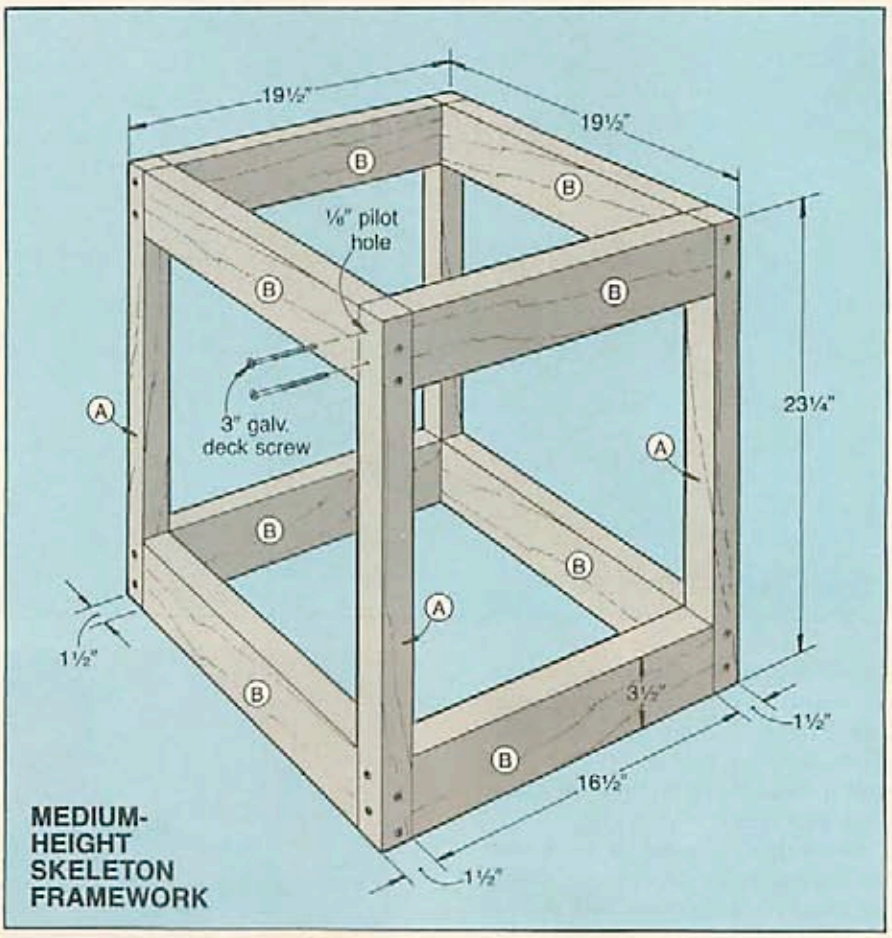
PLANTERS



Blooming beauties rise to the occasion in these outdoor decorators. Simple to construct, the framework consists of 2x4 stock, handsomely covered with weather-resistent cedar fencing. Each planter has a shelf you can position to elevate your favorite plants to just the right height. With a total cost of under $90, what better way to display your greenery?

APLENTY

Note: *The following directions are for the medium-height planter. To build the other two planters, refer to the Bill of Materials on page 72 for the short planter and page 71 for the tall planter. Although the sizes of the parts vary from planter to planter, the parts for all three planters are lettered the same. To build the shortest and tallest planters, follow the directions for the medium-height planter.*

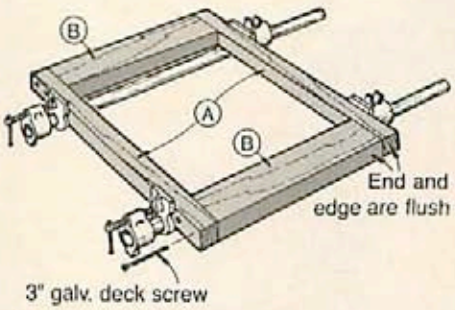


MEDIUM-HEIGHT SKELETON FRAMEWORK

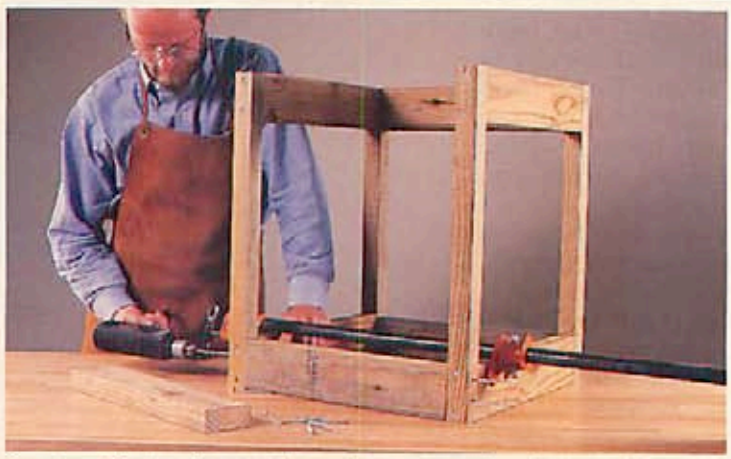
CONSTRUCT THE SKELETON FRAMEWORK

1 Cut four uprights (A) and cross members (B) to the sizes listed in the Bill of Materials. (We ripped and crosscut the uprights to size from one 8′ pressure-treated fir 2x4.)

2 Clamp two cross members between two uprights as shown on the drawing *below*. Check for square, drill ⅛" pilot holes, and screw the frame together. Repeat for the second frame.



3 Clamp the remaining four cross members between the two assembled frames. Now, drill pilot holes, and screw them in place as shown in the photo at *right*.

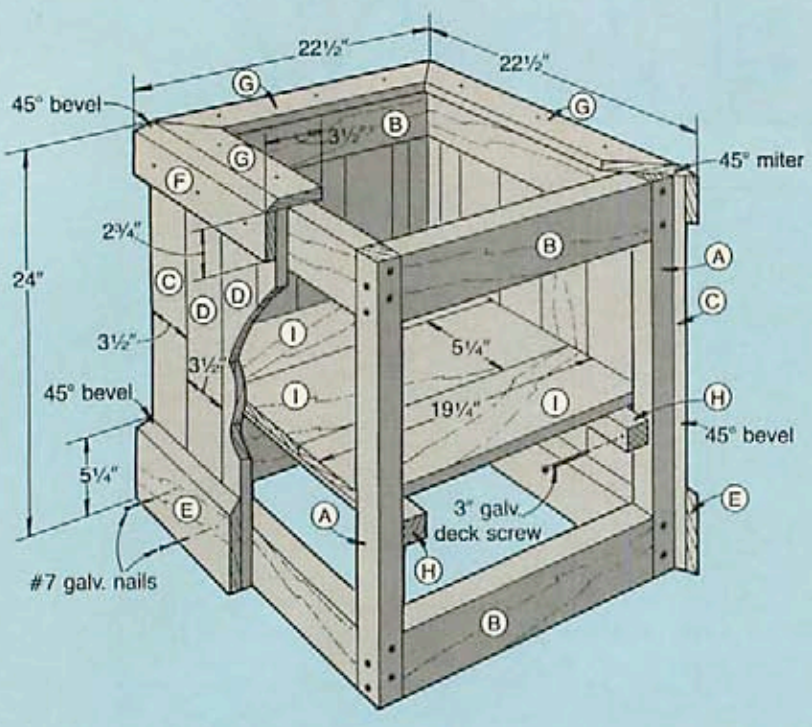

Construct the two frames, clamp the cross members between them, and screw the cross members in position with 3" deck screws.

NAIL ON THE SIDING

1 Cut eight corner siding pieces (C) and the center siding pieces (D) to length. (We used 1x6x8′

Continued

PLANTERS APLENTY



MEDIUM-HEIGHT PLANTER

Bill of Materials

Part	Finished Size*			Material	Qty.
	T	W	L		
A	1½"	1½"	23¼"	fir (treated)	4
B	1½"	3½"	16½"	fir (treated)	8
C	¾"	3½"	23¼"	cedar	8
D*	¾"	3½"	23¼"	cedar	16
E*	¾"	5¼"	22½"	cedar	4
F*	¾"	2¾"	22½"	cedar	4
G*	¾"	3½"	22½"	cedar	4
H	1½"	1½"	19¼"	fir (treated)	2
I	¾"	5¼"	19¼"	cedar	3

*Parts marked with an * are cut larger initially, and then trimmed to finished size. Please read the instructions before cutting.

Supplies: 3" galvanized deck screws, #7 galvanized nails.

cedar fencing. In checking sources, we found that 1x6 cedar fencing varies from 5¼" to 5½" in width. With this in mind, 5¼" is the widest board you'll find on these three planters.)

2 Bevel-rip one edge of each corner siding piece at 45° to obtain the finished width (we did this on the table saw).

3 Holding the beveled edges tight, nail two corner siding pieces to each corner of the framework. Keep the top edges of the siding pieces flush with the top of the framework. (See the Siding and Trim Drawing for details.)

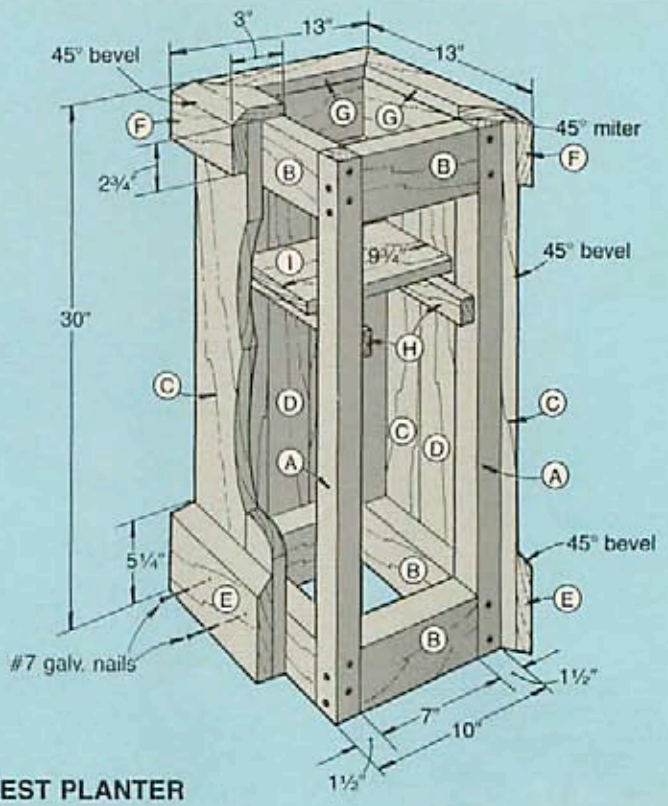
4 Measure the distance between the corner siding pieces (C), divide this distance by 4, and rip each center siding piece (D) to this width plus ⅛" (we cut our pieces to 3⅝" wide). Next, starting at the outside and working in, as shown in the photo at *right*, nail the center pieces in place. Plane one edge of each of the last two remaining in-

After assembling the skeleton frame, nail the siding pieces in place by starting at the outside and working in. Plane the center piece to fit.

Bill of Materials					
Part	Finished Size*			Material	Qty.
	T	W	L		
A	1½"	1½"	29¼"	fir (treated)	4
B	1½"	3½"	7"	fir (treated)	8
C	¾"	3¾"	29¼"	cedar	8
D*	¾"	4"	29¼"	cedar	4
E*	¾"	5¼"	13"	cedar	4
F*	¾"	2¾"	13"	cedar	4
G*	¾"	3"	13"	cedar	4
H	¾"	1½"	9¾"	cedar	2
I	¾"	5¼"	9¾"	cedar	1

*Parts marked with an * are cut larger initially, and then trimmed to finished size. Please read the directions before cutting.

Supplies: 3" galvanized deck screws, #7 galvanized nails.



TALLEST PLANTER

Cutting Diagram

Shortest Planter

14 Pieces—¾x5¼x96" Cedar (1x6) for Parts C-G, I

Shortest Planter

4 Pieces—1½x3½x96" Treated Fir (2x4) for Parts A, B, H

Medium-Height Planter

10 Pieces—¾x5¼x96" Cedar (1x6) for Parts C-G, I

Medium-Height Planter

3 Pieces—1½x3½x96" Treated Fir (2x4) for Parts A, B, H

Tallest Planter

6 Pieces—¾x5¼x96" Cedar (1x6) for parts C-I

Tallest Planter

2 Pieces—1½x3½x96" Treated Fir (2x4) for Parts A, B

side pieces until they fit snug between the other pieces.

5 Belt-sand the top and bottom edges of the siding (C, D) flush with the top and bottom edges of the framework (A, B).

CUT AND ADD THE TRIM PIECES

1 Cut the base pieces (E) to length plus 1".

2 Hold the pieces in place, and mark the length needed (a combination square works well for marking the 45° angles). Miter-cut both ends of each base piece. (We cut ours on the table saw using a miter gauge to push the pieces over the angled blade. You could also cut the pieces on the radial arm saw.)

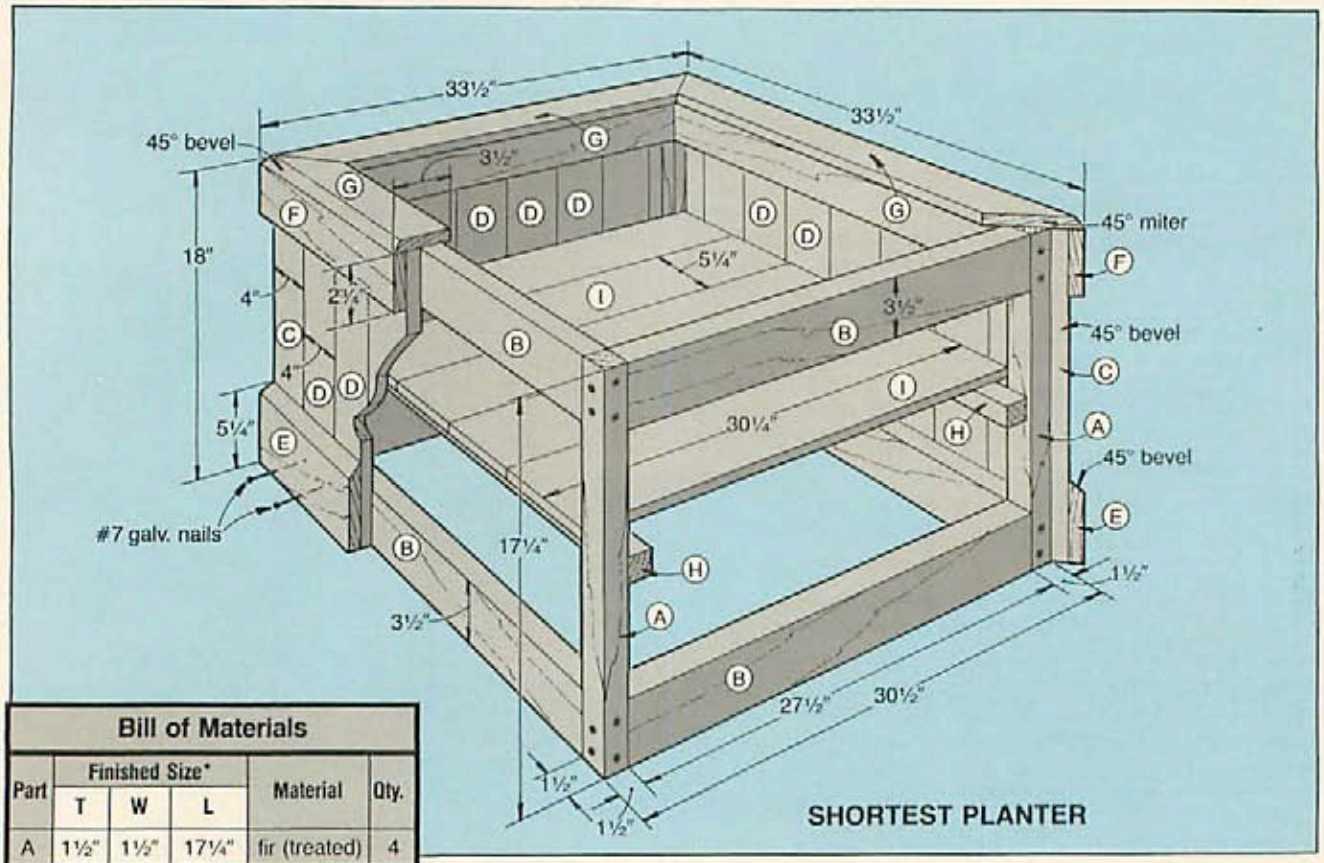
3 Bevel-rip the top edge of each at 45° to trim the board to width. Nail the pieces in place around the perimeter of the base.

4 Mark the lengths needed, and cut the top trim pieces (F) to length plus 1". Now, rip the pieces to width, and miter-cut them to length. Nail the pieces in place flush with the tops of the siding.

5 Measure the distance, and cut the top pieces (G) to length plus 2". Now, bevel-rip the outside edge of each piece to trim the piece to a 3½" width. Carefully measure the distance, and miter-cut the top pieces to length. With the outside edge of each G flush with the outside face of each F, nail the top pieces in place.

Continued

PLANTERS APLENTY



Bill of Materials

Part	Finished Size*			Material	Qty.
	T	W	L		
A	1½"	1½"	17¼"	fir (treated)	4
B	1½"	3½"	27½"	fir (treated)	8
C	¾"	4"	17¼"	cedar	8
D*	¾"	4"	17¼"	cedar	24
E*	¾"	5¼"	33½"	cedar	4
F*	¾"	2¾"	33½"	cedar	4
G*	¾"	3½"	33½"	cedar	4
H	1½"	1½"	30¼"	fir (treated)	2
I	¾"	5¼"	30¼"	cedar	5

*Parts marked with an * are cut larger initially, and then trimmed to finished size. Please read the instructions before cutting.

Supplies: 3" galvanized deck screws, #7 galvanized nails.

ADD THE SHELF

Note: *The shelf allows you to raise or lower your potted plants for the best viewing height. We positioned our shelf so the top of the pots was about level with the top of the planter.*

1 Rip and crosscut the shelf cleats (H) to size from 2x4 stock. Now, cut the shelf boards (I) to size.

2 To locate the shelf for the planter, measure down from the top edge of each planter the height of the flowerpot plus ¾", and make a mark on each upright. (For example, if your pot is 8" high, measure down 8¾" and make a mark on each upright.) Then, lay the planter on its side, position the top edge on one cleat (H) even with the marked lines on two of the uprights, and screw it into place. Lay the planter on the opposite side, and repeat to fasten the second cleat.

3 Lay the shelf boards on the cleats (we didn't nail ours in place in case we ever wanted to change the cleat positions for new pots), and add the plants. Finally, call the neighbors over for coffee on the patio—they can't help but notice your sharp new planters.

SHORTEST PLANTER

To build the shortest of the three planters, refer to the Bill of Materials on this page, the Cutting Diagram on the previous page, and the directions starting on page 69 for the medium-height planter. Although the sizes of the parts vary, they are lettered the same, and the building procedure is nearly identical to that of the medium-height planter.

TALLEST PLANTER

To build the tallest of the three planters, refer to the Bill of Materials and the Cutting Diagram for the tall planter on the previous page and the directions starting on page 69 for the medium-height planter. Although the sizes of the parts vary, they are lettered the same and the building procedure is nearly identical to that of the medium-height planter except for the shelf. Due to the small opening at the top, attach the cleats (H) before attaching the siding.

Written and Produced by Marlen Kemmet
Project Design: James R. Downing
Photographs: Bob Calmer
Illustrations: Mike Henry, Bill Zaun

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The Editor
The Woodworker's Journal

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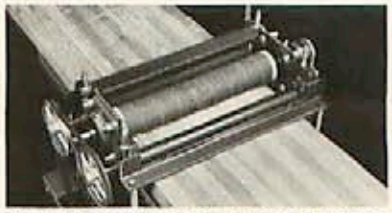

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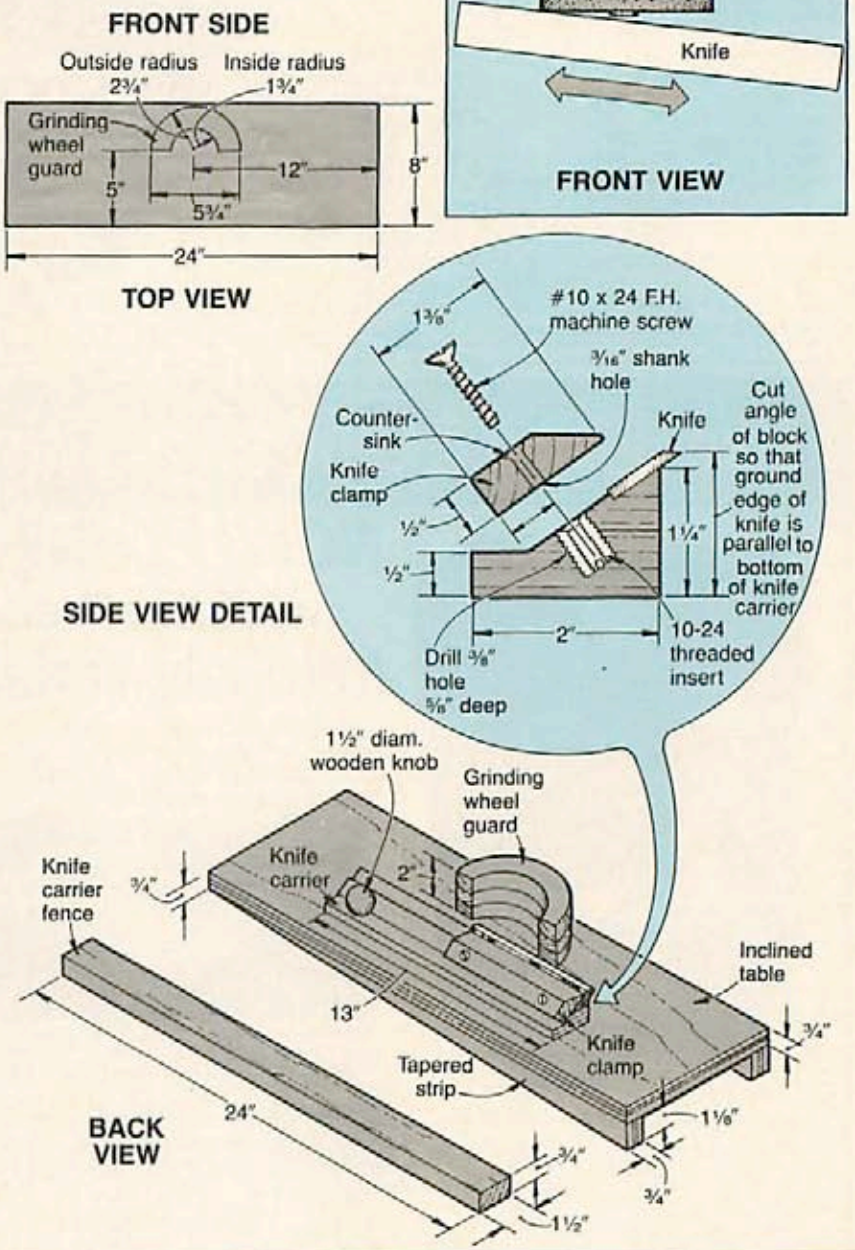
SAVE $$ SHARPENING YOUR OWN

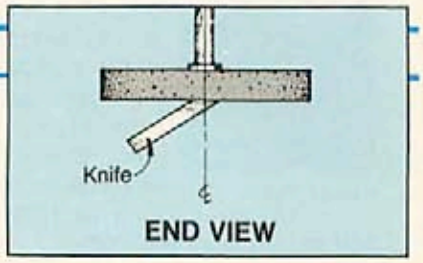
JOINTER/PLANER KNIVES

See related article on page 26

Instead of waiting days for a sharpening shop to grind your jointer knives, do the job in minutes at your drill press.

You can save the expense of someone else sharpening your jointer/planer knives by building this jig conceived by *WOOD*® magazine Design Editor Jim Downing. As shown *below*, the secret to the success of this





sharpener is that the knife passes across the stone at an angle. Result: only the outside rim of the stone touches the knife, creating a sharp edge and minimum heat. After you build the jig, you'll only need to fashion a knife carrier for each of your knives (if they're different in size).

To use the jig:

- Put the grinding stone into the chuck and set your drill press for 3,000 rpm.
- Clamp the inclined jig table to the drill press table, positioned so the stone centers within the curved guard.
- Clamp the knife into the carrier.
- Raise the table so the knife just touches the stone.
- Adjust the carrier fence so the bevel on the knife centers on the stone (see the end view illustration *above*).
- With the drill press still turned off, slide the carrier/knife assembly across the stone to check for adequate clearance.
- Don your face shield, start the drill press, and slide the knife across the stone. Slide in a slow and steady movement (about 1" every second). Once past the stone, slide the knife back across the stone and repeat until sharp. You may have to raise the table slightly to remove any nicks in the knife.
- ***Caution:*** Raising the table too much will put excessive pressure on the stone, causing the knife edge to overheat or possibly shatter the stone. So take it easy!
- Finally, remove the knife from the carrier and whet away the burr from the knife's back side.

Jig design: James R. Downing
Illustrations: Mike Henry, Bill Zaun

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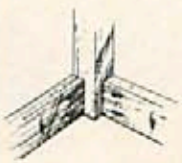
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CARVE HILLBILLY WILL

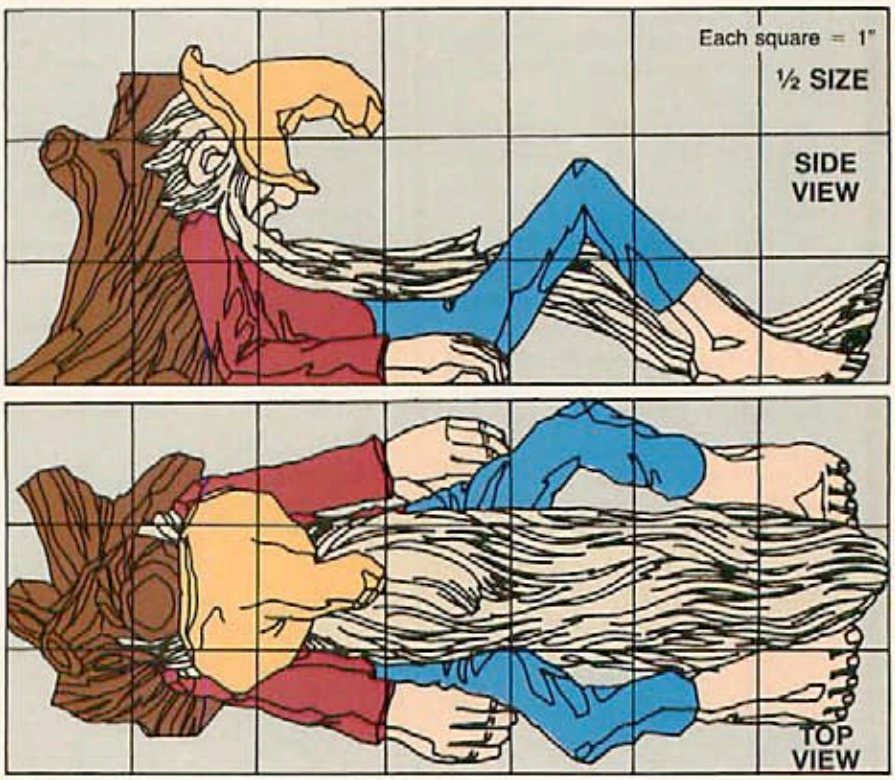
An Ozark caricature by Harold Enlow

Harold Enlow

Carver Harold Enlow lives in Dogpatch, Arkansas, smack dab in the middle of the Ozark mountains. Figures of local characters and fictional folk such as Hillbilly Will stream from his studio.

"I have my carving studio-workshop at home, on our peaceful 38 acres where deer often graze in our field," Harold says, describing

One in a collection of regional patterns from the nation's top carvers.



the setting. "My wife, Elaine, does all the finishing on my carvings, and our four-year-old daughter, Katie, plays in the woodchips with our dog, Wendell."

Harold began carving as a hobby in the Army. After his service stint, he learned more about carving by working alongside master carver Peter Engler in Silver Dollar City, Missouri. From there, Harold moved to Dogpatch. Now, in addition to his carving, he writes books and teaches the subject.

Renowned among carvers and the public for his caricatures, Harold says of Hillbilly Will, "This reclining figure is typical of the Arkansas Ozarks' hillbilly all tourists *anticipate* seeing, but rarely do. However, there are a few of us left if you look in just the right places."

CARVING AND FINISHING HILLBILLY WILL

Harold likes basswood, and that's what he used for this 7x2¼" figure. However, any carving wood that takes detail will work.

"Trace the pattern on the carving block so that the wood grain runs the length of the figure," he advises. "That way, your long, continuous cuts for the hair of his beard will flow smoothly."

This accomplished carver relies on a carving knife and a few small palm gouges to shape the figure and add details. For the tiny furrows in the figure's hair, beard, fingers, and toes, Harold calls on a narrow-angled V-tool. "Make sure your V-tool is extremely sharp," he notes, "or the cuts will be ragged instead of clean and smooth."

For finishing, Elaine thins artist's acrylic paints to stain consistency. After the paint dries, she applies a furniture antiquing finish, then wipes it off immediately. Sprayed-on acrylic protects the figure.

Note: For a full-size pattern, send a self-addressed, stamped, business-size envelope to: HILLBILLY PATTERN, *WOOD*® Magazine, Locust at 17th, Des Moines, IA 50336. **Offer expires Dec. 31, 1988.**

Design: Harold L. Enlow
Photographs: Bob Calmer, Elaine Enlow

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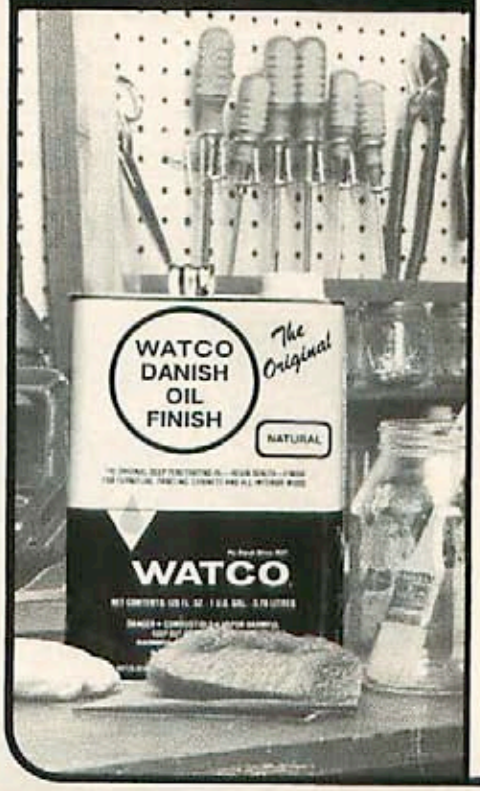

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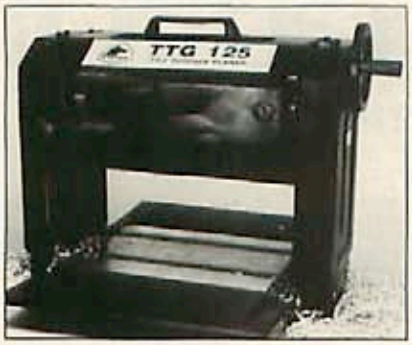

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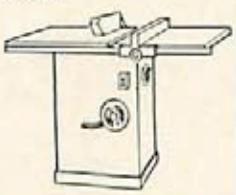

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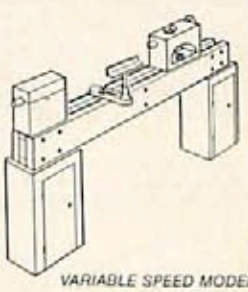

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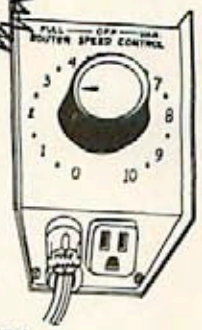

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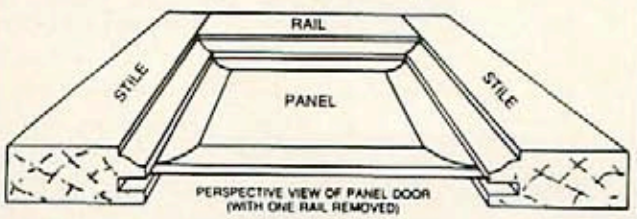

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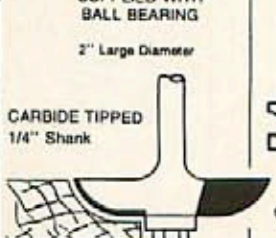

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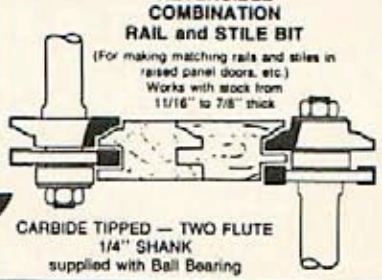

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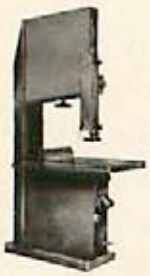

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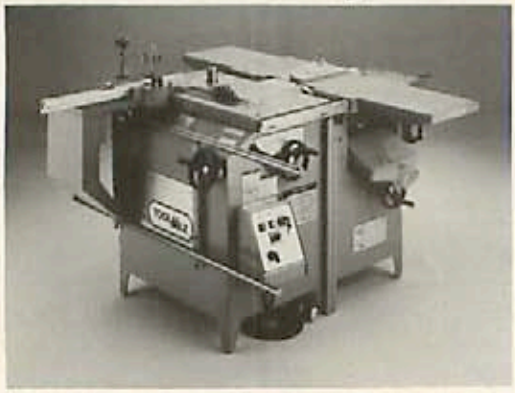

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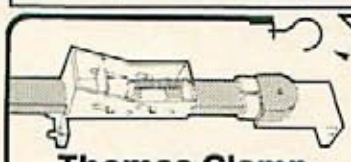

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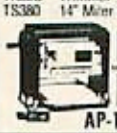

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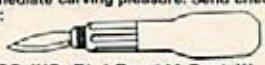

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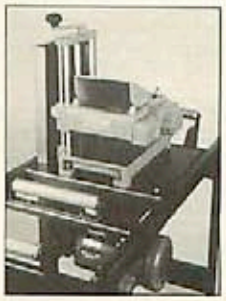

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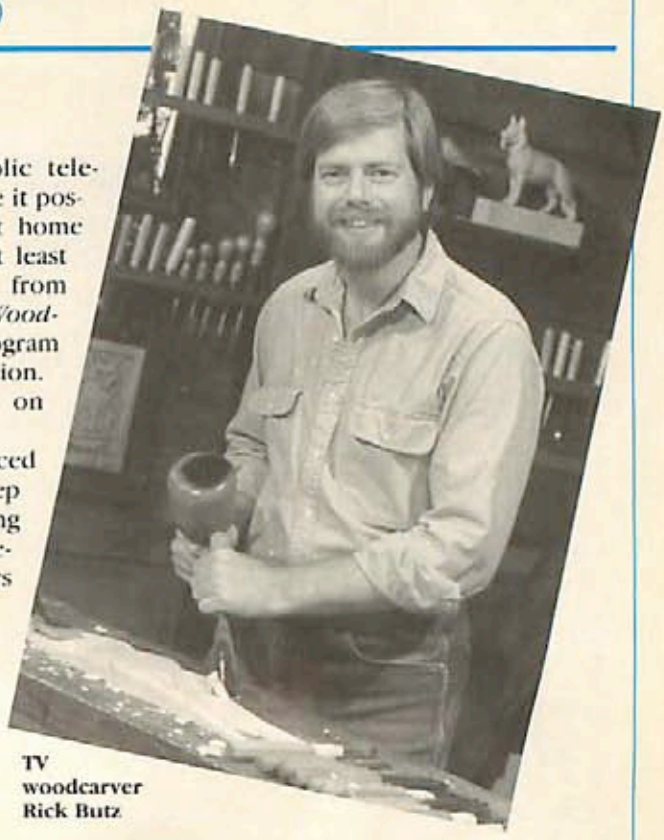
Schenectady, New York's public television station, WMHT, has made it possible to learn woodcarving at home from an entertaining friend. At least that's the impression we got from watching a sample program of *Woodcarving with Rick Butz*, a 13-program series produced for that station. The program airs nationally on many PBS channels.

In the series, Butz (pronounced "boots") takes you step by step through a variety of woodcarving projects. From carving his renowned Adirondack characters (see "French Louie," *WOOD*® magazine, June, 1987, page 78) to an American eagle, chipmunk, sign, toys, and coat of arms, Rick laces his how-to program with interesting and amusing stories. To chip away with Rick, check your local TV listings.



TV woodcarver Rick Butz

CALIFORNIA REDWOOD LOGGERS FIND TREES WRAPPED IN RED TAPE

California lumber companies that harvest redwood deal with the tightest regulations in the industry, according to the National Forest Products Association. The state requires detailed harvest plans that undergo a 45-day review. Typical plan applications run at least seven pages, include expected erosion hazards and other environmental impacts, and lists of adjoining landowners to be notified. Also, the plan may be subject to public hearings and appeals. California's rules also dictate logging frequency in timber tracts, list the hours of the day loggers fell trees, prescribe the days for log hauling, and allocate the percentage of trees removed.

Yet, the lumber companies don't gripe about the mind-boggling maze of red tape and readily comply with the reams of regulations. It seems that such strict control acts as a two-edged sword. It makes formerly active and vocal environmentalists happy as well as silent. And, the redwood loggers—often maligned as bad guys in the sixties and seventies for pillaging the land—now enjoy a public image as responsible reapers of the resource.

WOOD CAN'T GET ANY MORE EXOTIC THAN THIS!

You'd have a devil of a time finding goldie wood, red cedis, musk burl, blackheart dorel, and pinkwood at your neighborhood lumberyard. Your queries would only draw blank stares. Unless, of course, yo were shopping on the Australian island commonwealth of asmania, where these species are commonpace. Or, you talked to Jim Heusinger, owner of Berea ardwoods in Berea, Ohio. He sells them—and otherequally exotic Tasmanian wood—as eye-appealing specimens for woodturners and other craftsmen.

"We don't even know th correct botanical names for all of these species," Husinger says about his stash. "This wood comes from ome wild, untamed wilderness that has to be cleard for water reservoirs. The government was going to brn the trees."

Through a wood broker ving in Tasmania, Jim buys the wood about 30,000 boad feet at a time, has it kiln-dried, and foots the shippir; for its voyage.

For imagination-bogglinglescriptions and prices of Jim's Tasmanian hardwoodscall him at 216/243-4452, or write for his brochure: erea Hardwoods, 125 Jacqueline Dr., Dept. 10, Bere:OH 44017.

Illustrations: Jim Stevenson

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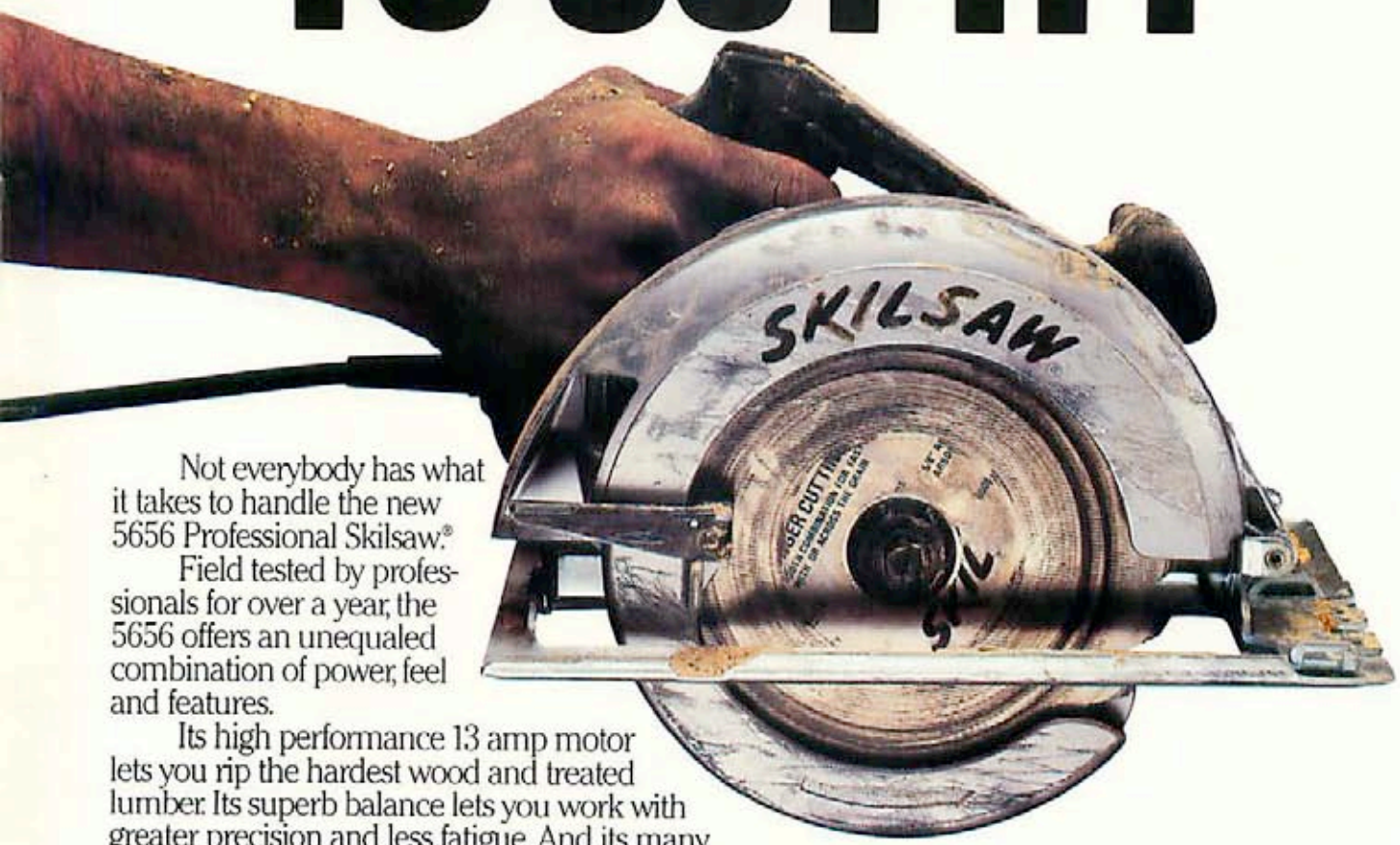

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